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Aaron Larks-Stanford

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THE WARRANTLESS USE OF THERMAL IMAGING AND "INTIMATE DETAILS": WHY GROWING POT INDOORS AND WASHING DISHES ARE SIMILAR ACTIVITIES UNDER THE FOURTH AMENDMENT

Aaron Larks-Stanford*

With the advent of advanced technology in the war against crime, the right of privacy has recently come under fierce attack.¹ Law enforcement agencies use modern technology that provides them the ability to "see" through clothing and walls, in order to determine whether an individual possesses weapons, drugs, or other objects.² Specifically, law enforcement officials employ thermal imagers to locate and catch criminals, terrorists, and even polluters.³ Commercial users also utilize thermal imagers to check moisture-laden roofs, overloaded power lines, and sub-standard building insulation.⁴ Thermal imagers detect differences in the surface temperature of targeted objects and display those differences in

*J.D. candidate, May 2000, The Catholic University of America, Columbus School of Law.

1. See Merrick D. Bernstein, Note, *"Intimate Details": A Troubling New Fourth Amendment Standard for Government Surveillance Techniques*, 46 DUKE L.J. 575, 575-76 (1996) (arguing that courts must reconsider Fourth Amendment jurisprudence in light of law enforcement's use of new technology in government surveillance operations); see also Todd M. Higey, Comment, *The Effect of Constitutional Hermeneutics on Whether Warrantless Thermal Imaging Is an Impermissible Search Under the Fourth Amendment*, 36 DUQ. L. REV. 415, 435 (1998) (contending that a court, applying a textualist hermeneutic, would in all likelihood find that the use of thermal imaging does not constitute a search); Omar Ortega, Note, *Thermal Imaging Devices: How the Government Privately Repealed the Fourth Amendment*, 46 DRAKE L. REV. 173, 192 (1997) (stating that although courts will not rely on "analogies to garbage searches, dog sniffs, or aerial observations," they will rely upon the objects revealed by the thermal imagers).

2. See Jennifer Tanaka & N'Gai Croal, *A New Way to Spot Weapons*, NEWSWEEK, July 31, 1995, at 8; see also Mindy G. Wilson, Note, *The Prewarrant Use of Thermal Imagery: Has This Technological Advance in the War Against Drugs Come at the Expense of Fourth Amendment Protections Against Unreasonable Searches?*, 83 KY. L.J. 891, 896-98 (1995) (discussing the technological capabilities of thermal imaging devices).

3. See John Gibeaut, *High-tech Heat Seeking: Warrantless Use of Detection Device Splits Appeals Courts*, 89 A.B.A. J. 34, 34 (1998); see also Janice Fiorante, *Night Sight*, INVESTOR'S BUSINESS DAILY, Feb. 26, 1995, at A6. "[Night vision] technology is gaining acceptance in public safety applications such as in the law enforcement, drug interdiction, search and rescue, as well as industrial markets." *Id.* at A6.

4. See *United States v. Kyllo*, 190 F.3d 1041, 1044 (9th Cir. 1999).

varying shades of gray and white.⁵ The screen of the thermal imager reveals the object in somewhat less detail than a television picture.⁶

Although law enforcement agencies use thermal imaging to detect a variety of criminal activity,⁷ the majority of cases challenging the constitutionality of this law enforcement practice have dealt with the use of thermal imagers to detect indoor cultivation of marijuana.⁸ Because of

5. See Gibeaut, *supra* note 3, at 34-35 (explaining that thermal imagers are unlike television monitors, which display clearer pictures). Instead, thermal imagers are like video cameras because they bring into range infrared rays coming from structures and convert them into visual images that are fuzzy and unclear. *See id.*

6. See *United States v. Field*, 855 F. Supp. 1518, 1521 (W.D. Wis. 1994) (stating that thermal imaging, which relies on differences in radiant heat from objects, is not the same as electromagnetic imaging); *see also* Douglas A. Kash, *Prewarrant Thermal Imaging as a Fourth Amendment Violation: A Supreme Court Question in the Making*, 60 ALB. L. REV. 1295, 1297-99 (1997) (explaining in detail how thermal imaging devices work). The devices measure the amount of heat emitted from structures by "utilizing optical electronic sensors that can read the thermodynamic characteristics of the target." *Id.* at 1297-98. They are about the size of a standard 35mm camera and can detect temperature differentials "as small as one-half of a degree at a range 'between two feet and one quarter of a mile.'" *Id.* at 1298. Thermal imagers measure heat temperature by scanning infrared wavelengths of the electromagnetic spectrum. *See id.* Because the infrared section of the spectrum occurs at a much lower speed than that of visible light, the human eye cannot see it. *See id.*

Thermal imagers convert the thermal readings to a computer, which creates different displays, including video or real time pictures. *See id.* The thermal imagers detect radiated heat, not converted heat. *See id.* Heat generally radiates until it is transmitted, absorbed, or reflected. *See id.*

Thermal imagers are passive devices, which means they do not transmit into the structure any form of pulse, ray or beam. *See id.* Instead, the device targets and measures the emanation of "waste heat." *See id.* Users can employ the imager to detect targets beyond the boundaries of one's property, as to not "intrude" in any way on the targeted property. *See id.* Likewise, the imager also reveals hot spots on the exterior of buildings. *See id.*

Thermal imagers are available commercially, thus allowing the public the opportunity to use the techniques practiced by government agents. *See id.* at 1298-99. Operators of the device must use it after nightfall when the stored solar energy of the object begins to dissipate. *See id.* at 1299. Users first calibrate the device by focusing on a "normal" source. *See id.* Once calibrated, the operator targets the imager on an object or structure in order to "see" heat patterns. *See id.*

7. See Gibeaut, *supra* note 3, at 34 (explaining that law enforcement officials are using high-tech "snooping" to apprehend criminals, terrorists, polluters, and others). Although the equipment used by law enforcement agents has become more sophisticated and technologically advanced, Gibeaut suggests that the Supreme Court has been lagging far behind by not creating clear precedent in order to protect individual freedoms from government intrusion. *See id.* Under the current test for a search within the meaning of the Fourth Amendment, it is not clear whether the use of such devices by government officials constitutes a search. *See id.* at 34-35.

8. *See id.* Law enforcement officials find thermal imagers especially helpful in detecting heat signatures from high-intensity lights that aid in indoor marijuana cultivation. *See id.* As the marijuana cultivators are forced to grow their product indoors, away from the public eye, they must also use high-intensity lights to make up for the lack of sunlight.

its potential intrusive impact, criminal defense attorneys challenge thermal imaging as a violation of the Fourth Amendment.⁹ Law enforcement agents find using thermal imagers to investigate the illegal cultivation of marijuana especially helpful because thermal imagers detect the heat signatures of high-intensity lights often used in the indoor cultivation of marijuana.¹⁰ The constitutional question is whether the use of thermal imaging constitutes a search within the meaning of the Fourth Amendment.¹¹

Early Supreme Court decisions interpreted the Fourth Amendment as protecting individuals from physical trespass by government agents.¹² The Supreme Court has concluded that there are certain "constitutionally protected areas" where the government cannot intrude without a warrant.¹³ The Court, however, has also defined criteria for when the

See id.

9. *See, e.g.,* United States v. Kyllo, 140 F.3d 1249, 1255 (9th Cir. 1998), *withdrawn*, 184 F.3d 1059 (9th Cir. 1999), *aff'd on reh'g*, 190 F.3d 1041, 1043 (9th Cir. 1999); United States v. Cusumano, 67 F.3d 1497, 1510 (10th Cir. 1995), *rev'd en banc, vacated as motion to suppress is aff'd*, 83 F.3d 1247 (10th Cir. 1996); *see also* State v. Siegal, 934 P.2d 176, 180 (Mont. 1997) (finding that the use of thermal imaging in a criminal investigation of a marijuana growing operation constituted a "search" under the Montana Constitution). *But see* United States v. Ishmael, 48 F.3d 850, 857 (5th Cir. 1995), *reh'g denied*, 53 F.3d 1283 (1995), *cert. denied*, 516 U.S. 818 (1995), *and reh'g denied*, 516 U.S. 1003 (1995) (concluding that the warrantless use of a thermal imager upon a marijuana growing operation did not violate the Fourth Amendment); United States v. Myers, 46 F.3d 668, 669 (7th Cir. 1995), *cert. denied*, 516 U.S. 879 (1995), *and reh'g denied*, 516 U.S. 1033 (1995) (holding that thermal imaging was not a "search" within the meaning of the Fourth Amendment in a case involving the manufacturing of marijuana).

10. There was a time when individuals cultivated marijuana commercially outdoors. *See* Gibeaut, *supra* note 3, at 34. As law enforcement officials increased their use of sophisticated technology to apprehend individuals driven underground by the war on drugs, however, marijuana producers had to move their operations indoors to stay in business. *See id.* Some marijuana producers have even built their own underground bunkers that consume enormous amounts of electricity, making them prime targets for thermal imagers. *See id.*

11. *See* U.S. CONST. amend. IV.

12. *See* Olmstead v. United States, 277 U.S. 438, 463-64 (1928) (finding that a police wiretap was not prohibited because there was no physical entry upon the defendant's property). Justice Brandeis, dissenting in *Olmstead*, warned:

The progress of science in furnishing the Government with means of espionage is not likely to stop with wire-tapping. Ways may some day be developed by which the Government, without removing papers from secret drawers, can reproduce them in court, and by which it will be enabled to expose to a jury the most intimate occurrences of the home.

Id. at 474 (Brandeis, J., dissenting).

13. *See* Silverman v. United States, 365 U.S. 505, 510-12 (1961) (finding that eavesdropping violated the Fourth Amendment because the device used invaded the occupant's premises). The Court held that the warrantless eavesdropping, which was accomplished through an electronic device that penetrated the occupied premises, amounted to a physi-

government may intrude without a warrant. For example, the Fourth Amendment does not prohibit police wiretapping of telephone calls because police acquire the information without having to physically enter upon the defendant's premises.¹⁴ Traditionally, the Court has sought to protect citizens against physical and "hands on" searches.¹⁵

With the development of more sophisticated surveillance techniques, however, the Court has interpreted the word "trespass" to encompass more than merely physical intrusion upon an individual's property.¹⁶ As early as 1928, Justice Brandeis foresaw the development of technology and warned against the implications of utilizing a standard that concentrated on the physical aspects of surveillance techniques.¹⁷ In response to numerous Fourth Amendment challenges to police activity that did not involve physical trespass on an individual's property, the Court shifted to an interpretation of the Fourth Amendment as a protection of people, rather than of property.¹⁸ In doing so, the Court redefined the term "search" within the meaning of the Fourth Amendment. Concurring, Justice Harlan concluded that in determining whether a particular activity constituted a search within the meaning of the Fourth Amendment, an individual's "reasonable expectation of privacy" would govern.¹⁹ The Court eventually adopted this test, known as the reasonable expectation of privacy test or standard, in order to analyze whether a surveillance

cal intrusion and was, therefore, a violation of the Fourth Amendment. *See id.* at 509-510.

14. *See Olmstead*, 277 U.S. at 466 (holding that a police wiretap did not constitute a search according to the Fourth Amendment). The police in this case were able to make the interception using a wiretap without physically entering the defendant's property. *See id.*

15. *See Silverman*, 365 U.S. at 509-10 (holding that warrantless eavesdropping through a "physical intrusion" violates the Fourth Amendment).

16. *See Dow Chem. Co. v. United States*, 476 U.S. 227, 247 (1986) (Powell, J., concurring in part and dissenting in part) (stating that the privacy protection provided by the Fourth Amendment also covers official surveillance that can be achieved through means that do not involve a physical intrusion). Justice Powell provided that the "reasonable expectation of privacy" standard was developed to guarantee that the Fourth Amendment protects privacy, even in an age when official surveillance by government agents can be achieved without "physical penetration" on another's property. *See id.*

17. *See Olmstead*, 277 U.S. at 474 (Brandeis, J., dissenting) (warning that the means may someday be developed that would enable government agents to expose the most intimate details of the home in the courtroom). Justice Brandeis warned that "advances in psychic and related sciences may bring a means of exploring unexpressed beliefs, thoughts, and emotions." *Id.*

18. *See Katz v. United States*, 389 U.S. 347, 351 (1967) (stating that the Fourth Amendment "protects people, not places"). The Court in *Katz* stated, "[W]hat a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection What he seeks to preserve as private, even in an area accessible to the public, may be constitutionally protected." *Id.* at 351-52.

19. *See id.* at 361 (Harlan, J., concurring).

technique constitutes a search.²⁰

Recently, the Supreme Court again altered its examination process in determining whether surveillance techniques constitute searches within meaning of the Fourth Amendment.²¹ Under this newly refined method of analysis, the Court concentrates not on the device or procedure used by law enforcement to gather information, but rather on the content of the information revealed.²² While still adhering to the reasonable expectation of privacy standard in name, the Court, nonetheless, adopted a different test, commonly referred to as the "intimate details" standard.²³ Under the intimate details method of analysis, the Court focuses on whether a given surveillance technique has revealed human activities often done within the privacy of one's own home.²⁴

Applying this intimate details standard, however, is difficult because the Court must determine what human activities actually constitute the intimate details of an individual's life, and where revelation of such activities, through the use of a surveillance technique, would violate the Fourth Amendment. Within the scope of intimate details, defendants have argued that courts should consider the clarity and sharpness of the image created by the device to determine whether a Fourth Amendment violation has occurred.²⁵ Under another view, courts have focused on

20. See *id.* Justice Harlan stated that his "understanding of the rule that has emerged from prior decisions is that there is a twofold requirement, first that a person have exhibited an actual (subjective) expectation of privacy, and, second, that the expectation be one that society is prepared to recognize as 'reasonable.'" *Id.*

21. See Bernstein, *supra* note 1, at 577-78. Cases like *Dow* demonstrate a refinement; that is, the Court is conducting an *ex post* inquiry into the content of the information provided by the surveillance techniques. See *id.* Previously, the Supreme Court's inquiry focused upon the manner in which the information was obtained. See *id.* at 578.

22. See *id.* at 578 (surmising that although the Court still "putatively" adheres to the *Katz* standard, the reasoning in many of its recent cases suggests that the Court believes certain government activities do not constitute searches under the Fourth Amendment because the procedure used does not necessarily reveal the intimate details of individuals' lives). See *id.*

23. See *Dow Chem. Co. v. United States*, 476 U.S. 227, 238 (1986) (stating that aerial photographs do not reveal intimate details to such a degree as to heighten constitutional concerns); *California v. Ciraolo*, 476 U.S. 207, 215 n.3 (1986) (stating that aerial observation of curtilage can be invasive if the technology reveals "those intimate associations, objects or activities otherwise imperceptible to police or fellow citizens"). Curtilage includes "those out-buildings which are directly and intimately connected with the habitation and in proximity thereto and the land or grounds surrounding the dwelling which are necessary and convenient and habitually used for family purposes and carrying on domestic employment." BLACK'S LAW DICTIONARY 384 (6th ed. 1990).

24. See *Dow*, 476 U.S. at 237-38.

25. Cf. *United States v. Myers*, 46 F.3d 668, 670 n.1 (7th Cir. 1995). The Indiana State Police performed thermal imaging scanning of Myers' residence, which revealed an inordinate amount of heat suggesting to police that Myers was using indoor lights linked to

whether the activities under surveillance were in fact private and intimate.²⁶

This Comment examines the dilemma that emerges with the use of advancing technological techniques of surveillance. Part I studies briefly the Supreme Court's Fourth Amendment jurisprudence. Part II surveys the relevant case law and the lower courts' reliance on both the reasonable expectation of privacy standard and the intimate details standard. Part III analyzes the complications created by the lack of a stricter definition of intimate details and the fact that many circuits continue to rely upon the reasonable expectation of privacy standard. In Part IV, this Comment suggests that the courts should not create a test regarding intimate details that relies on the clarity and sharpness of the image created. This Comment urges the Supreme Court to adopt a strict definition of intimate details that includes even mundane activities of everyday life.

marijuana cultivation. *See id.* at 669. When the police searched Myers' home, they discovered growing and processed marijuana plants, and various pieces of growing equipment. *See id.* Myers pleaded guilty to federal drug charges after losing a motion to suppress evidence gathered using the thermal imager. *See id.* Myers appealed the suppression ruling. *See id.* The Seventh Circuit held that thermal imaging does not "intrude in any way into the privacy and sanctity of an individual's home." *Id.* at 670. Continuing, the court held that none of the interests that create the need for "protection of a residence, namely the intimacy, personal autonomy and privacy associated with a home, are threatened by thermal imagery." *Id.*

In *Myers*, the defendant urged the court to consider limiting the use of less sophisticated imagers, like the one police utilized to scan his residence, in order to prevent more invasive intrusions by better technology. *See id.* at 670 n.1. Although acknowledging that future technology might generate equipment that could penetrate the walls of one's home unlawfully, the court rejected the defendant's argument because the imager used in *Myers* did not, in fact, have that capability. *See id.* Hence, the court rebuffed the defendant's contention that by allowing the use of the "bottom of the line" imager employed in this case, the court was opening the door to the use of more sophisticated machines without Fourth Amendment implications. *See id.*

26. *See United States v. Cusumano*, 67 F.3d 1497, 1504-07 (10th Cir. 1995) (arguing that it is quite clear that people have a reasonable expectation of privacy in the "undetected and unmonitored performance" of domestic activities). The court held that the defendants had a subjective and reasonable expectation that the government would not have access to heat signatures of activities taking place within their home. *See id.* at 1507. The use of thermal imaging, therefore, required a warrant. *See id.* The Seventh Circuit disagreed with this argument in *Myers*, holding that thermal imaging threatened none of the interests underlying the need to protect home privacy. *See Myers*, 46 F.3d at 670.

I. THE SUPREME COURT TACKLES THE DEFINITION OF A SEARCH AS LAW ENFORCEMENT AGENCIES DEVELOP MORE ADVANCED TECHNOLOGY

A. *The Supreme Court's Determination of What Constitutes a Search*

More than seventy years ago, the Supreme Court held in *Olmstead v. United States*²⁷ that the Fourth Amendment protected individuals only from physical searches.²⁸ *Olmstead* involved police wiretapping, where the police did not have to go onto the defendant's property, but instead utilized a wiretapping device at another location.²⁹ The Court held that the Fourth Amendment did not prohibit the police from investigating the defendant by gathering evidence using wiretap surveillance.³⁰ In focusing on the notion that the Fourth Amendment simply prohibited law enforcement officials from physically trespassing on a person's property, the Court found that the police did not violate the Fourth Amendment because they were able to intercept the conversations without having to enter upon the defendant's premises.³¹ In the early stages of its Fourth Amendment jurisprudence, the Supreme Court concentrated upon the physical nature of searches, thus protecting from Fourth Amendment attack future government surveillance methods that do not physically trespass.

B. *Moving From Physical Trespass to Personal Trespass in Katz v. United States*

Years after its decision in *Olmstead*, the Court heeded Justice Brandeis' warning regarding the future implications of adopting a narrow physical trespass interpretation of the term "search" in the context of the Fourth Amendment.³² Justice Brandeis had warned earlier that advances

27. 277 U.S. 438 (1928).

28. *See id.* at 466 (holding that a police wiretap was not proscribed by the Fourth Amendment); *see also* *Boyd v. United States*, 116 U.S. 616, 630 (1886) (concluding that it was "not the breaking of his doors, and the rummaging of his drawers, that constitutes the essence of the offense"). The violation is the invasion of the individual's "indefeasible right of personal security, personal liberty and private property." *Id.*

29. *See Olmstead*, 277 U.S. at 465-66.

30. *See id.*

31. *See id.*

32. *See Katz v. United States*, 389 U.S. 347, 351 (1967). Katz was convicted under an eight-count indictment for transmitting wagering information by telephone. *See id.* at 348. At trial, the government introduced into evidence Katz's telephone conversations. *See id.* The FBI agents heard the telephone conversations by attaching an electronic listening and recording device to the exterior of the public telephone booth used by Katz. *See id.*

in technology would eventually enable law enforcement agents to seize the most intimate details of the home without physical trespass.³³ With the technological advancement of surveillance techniques, the time was appropriate for a modification in Fourth Amendment jurisprudence.

In *Katz v. United States*,³⁴ government agents attached an electronic listening device to a public telephone booth in order to listen and record the petitioner's telephone call.³⁵ Evidence gathered by the government agents aided in convicting the petitioner of transmitting wagering information over the telephone in violation of federal law.³⁶ The petitioner challenged the wiretap as a violation of the Fourth Amendment and requested suppression of the recorded conversation.³⁷ The Court agreed with *Katz*, concluding that the wiretap was unconstitutional, and suggesting that the tapes should have been suppressed as fruits of an illegal

In its analysis, the Court considered the relationship between the right of privacy and the Fourth Amendment. *See id.* at 350-51. The Court first refused to translate the Fourth Amendment into a general constitutional "right of privacy." *See id.* The Fourth Amendment, according to the Court, protects individual privacy against certain kinds of governmental intrusion, "but its protections go further, and often have nothing to do with privacy at all." *Id.* at 350. The Court decided eventually that the protection of a person's "general" right to privacy, that is, a person's right not to be disturbed by other people, is—for the most part—left to the states. *See id.* at 350-51.

The Court found the "trespass" doctrine, enunciated in *Olmstead*, no longer controlling. *See id.* at 353. The Court concluded that the fact that the wiretapping device used by the law enforcement agents "did not happen to penetrate the wall of the booth [had] no constitutional significance." *Id.* The Court found that it did not matter whether the phone call had taken place in an office, in a person's apartment, or in a taxicab—a person making a private telephone call is entitled to the Fourth Amendment's protections. *See id.* at 352. A person who "occupies the [telephone booth], shuts the door behind him, and pays the toll that permits him to place a call is surely entitled to assume that the words he utters into the mouthpiece will not be broadcast to the world." *Id.*

33. *Olmstead*, 277 U.S. at 474 (Brandeis, J., dissenting). Justice Brandeis warns:

"In the application of a constitution, our contemplation cannot be only of what has been but of what may be." The progress of science in furnishing the Government with means of espionage is not likely to stop with wire-tapping. Ways may some day be developed by which the Government, without removing papers from secret drawers, can reproduce them in court, and by which it will be enabled to expose to a jury the most intimate occurrences of the home. Advances in the psychic and related sciences may bring means of exploring unexpressed beliefs, thoughts and emotions. "That places the liberty of every man in the hands of every petty officer" was said by James Otis of much lesser intrusions than these. To Lord Camden a far slighter intrusion seemed "subversive of all the comforts of society." Can it be that the Constitution affords no protection against such invasions of individual security?

Id. (citations omitted).

34. 389 U.S. 347 (1967).

35. *See id.* at 348.

36. *See id.*

37. *See id.* at 348-50.

search.³⁸ In so doing, the Court overturned its earlier position in *Olmstead* that property interests govern the right of the government to search and seize.³⁹ Instead, the *Katz* Court held that the Fourth Amendment acts as a protection of individuals and not of places.⁴⁰

Although the majority attempted to shift the Court's position concerning what activity constitutes a search in violation of the Fourth Amendment, the Court failed to establish a clear-cut or workable test. Justice Harlan, concurring in *Katz*, however, suggested a test to determine when certain law enforcement activity violates the Fourth Amendment.⁴¹ Lower courts soon recognized Justice Harlan's approach, commonly known as the "reasonable expectation of privacy" standard, as the primary framework for analyzing Fourth Amendment challenges.⁴²

C. The Supreme Court Adopts Justice Harlan's Concurring Opinion in Katz as the Test For What Constitutes a "Search"

Justice Harlan, in his concurring opinion in *Katz*, determined that a Fourth Amendment violation occurs when law enforcement conducts a warrantless search that infringes on an individual's reasonable expectation of privacy.⁴³ Under this standard, if the Court finds that an expectation of privacy is one that society is willing to recognize as reasonable, the government activity equals a search.⁴⁴ Unless the government agency has a warrant, the evidence gathered in that search is inadmissible at trial.⁴⁵ If the Court finds that the individual's expectation of privacy is not objectively reasonable, however, evidence obtained in the search is

38. See *id.* at 359.

39. See *id.* at 353 (holding that "the reach of [the Fourth] Amendment cannot turn upon the presence or absence of a physical intrusion into any given enclosure").

40. See *id.* at 351.

41. See *id.* at 361 (Harlan, J., concurring).

42. See generally *Hudson v. Palmer*, 468 U.S. 517, 524-25, 530 (1984) (holding that because the Fourth Amendment does not apply to prison cells, a prisoner does not have a legitimate expectation of privacy); *Smith v. Maryland*, 442 U.S. 735, 738-40 (1979) (holding that an individual has no legitimate expectation of privacy in the numbers dialed on a telephone); *Cardwell v. Lewis*, 417 U.S. 583, 588, 591 (1974) (holding that there is no expectation of privacy in the exterior of a vehicle left in a parking lot).

43. See *Katz*, 389 U.S. at 361 (Harlan, J., concurring).

44. See *id.* at 361.

45. See *id.* (holding that the defendant's conviction, which was based on the trial court's admission of the illegally seized conversation regarding wagering information, was invalid). The Court considered the fact that the government agents ignored the procedure of "antecedent justification," an element the Court found to be "central" to the Fourth Amendment. See *id.* The Court also concluded that the procedure of antecedent justification was "a constitutional precondition of the kind of electronic surveillance involved in this case." See *id.*

admissible.⁴⁶ The important determination concerns the definition of the reasonableness of the defendant's expectation of privacy.⁴⁷ Justice Harlan suggested that an enclosed telephone booth is an area like a home in the sense that a person has a constitutionally protected reasonable expectation of privacy in using the booth.⁴⁸ Justice Harlan, who suggested modestly that this twofold requirement emerged from prior decisions, explained that the physical limitation of Fourth Amendment protection created "bad law, for reasonable expectations of privacy may be defeated by electronic as well as physical invasion."⁴⁹

II. CASE LAW SINCE *KATZ*

A. *The Reasonable Expectation of Privacy Requirement*

In determining whether an individual has a reasonable expectation of privacy, the Supreme Court focuses on whether an individual has made efforts to prevent others from "seeing" the activity in question.⁵⁰ This criterion respects the first prong of Justice Harlan's reasonable expectation of privacy standard, which he described as a person's exhibition of an actual (subjective) expectation of privacy.⁵¹

46. See *California v. Greenwood*, 486 U.S. 35, 45 (1988) (reversing the trial court's decision to suppress the evidence obtained through a "search" because the seizure did not infringe upon an expectation of privacy that was reasonable).

47. See Bernstein, *supra* note 1, at 581-82. Bernstein argues that the primary inquiry under Justice Harlan's concurring analysis in *Katz* is "whether an individual's expectation of privacy is one that society is willing to recognize as reasonable." *Id.* If this expectation is reasonable, the Court deems the surveillance technique a "search," thus making the evidence obtained in the search inadmissible at trial. See *id.* at 581. If the Court, however, finds the individual's expectation not objectively reasonable, then the Fourth Amendment does not apply. See *id.*

48. See *Katz*, 389 U.S. at 360-61 (Harlan, J., concurring) (providing that electronic and physical intrusion in a place that is considered private may be a violation of the Fourth Amendment). A person who uses a telephone booth, occupies it, closes the door behind him, and pays the amount necessary to place a call, "is surely entitled to assume" that the conversation is not being intercepted." See *id.* at 361. The booth is a temporary private place where society considers the occupant's expectation of freedom from intrusion, though momentary, reasonable. See *id.*

49. *Id.* at 361-62.

50. See, e.g., *California v. Ciraolo*, 476 U.S. 207, 215 (1986) (holding that the warrantless aerial observation of a fenced-in backyard within the curtilage of a home did not constitute a "search" within the meaning of the Fourth Amendment); *Dow Chem. Co. v. United States*, 476 U.S. 227, 238-39 (1986) (finding that the warrantless aerial observation, through the use of a precise and expensive camera, of a chemical factory did not constitute a "search" within the meaning of the Fourth Amendment).

51. See *Katz*, 389 U.S. at 361 (Harlan, J., concurring) (explaining that the defendant showed an actual, or subjective, expectation of privacy by entering the phone booth and

In *Smith v. Maryland*,⁵² the Court concluded that the use of a pen register⁵³ by the New York Telephone Company upon the request of police did not constitute a search within the meaning of the Fourth Amendment.⁵⁴ Applying the standard set forth in *Katz*, the Court held that the individual in question had no reasonable, legitimate expectation of privacy in the numbers he dialed.⁵⁵ According to the Court, when people release telephone numbers voluntarily to the telephone company, they forfeit their expectation of privacy in the numbers they dial.⁵⁶

In addition to finding that no reasonable expectation of privacy existed, the Court emphasized the fact that the pen register did not provide a report of the contents of the caller's communications.⁵⁷ The *Smith* Court compared the telephone numbers obtained by the police with the conversation obtained in *Katz* and concluded that different approaches were required.⁵⁸ The Court stated that the content of a conversation is something of substance requiring significant protection, whereas a list of telephone numbers lacks substance that would mandate Fourth Amendment protection.⁵⁹

Dissenting in *Smith*, Justice Stewart introduced the phrase "intimate details" in the context of the Fourth Amendment.⁶⁰ According to Justice

shutting the door). A person's home is a place where one expects privacy. *See id.* However, the Fourth Amendment does not protect statements and activities that one exposes to the "plain view" of the public because a person has shown no intention to keep such statements or activities to himself. *Id.*

52. 442 U.S. 735 (1979).

53. *See id.* at 736 n.1 (quoting *United States v. New York Tel. Co.*, 434 U.S. 159, 161 n.1 (1977)). "A pen register is a mechanical device that records the numbers dialed on a telephone by monitoring the electrical impulses caused when the dial on the telephone is released. It does not overhear oral communications and does not indicate whether calls are actually completed." *Id.*

54. *See id.* at 745-46 (holding that the use of a pen register by the phone company upon the request of police did not constitute a "search" within the meaning of the Fourth Amendment).

55. *See id.* at 743 (stating that "even if petitioner did harbor some subjective expectation that the phone numbers he dialed would remain private, this expectation is not one that society is prepared to recognize as 'reasonable'") (internal quotations omitted).

56. *See id.* at 742-43.

57. *See id.* at 741.

58. *See id.* (noting that the pen register does not have the ability to reveal the subject matter of the conversation, the identities of the caller and the recipient, or whether the call was completed).

59. *See id.*

60. *See id.* at 748 (Stewart, J., dissenting); *see also* Bernstein, *supra* note 1, at 583 & n.51 (noting that Justice Stewart concluded by stating that "the broad and unsuspected governmental incursions into conversational privacy which electronic surveillance entails necessitate the application of Fourth Amendment safeguards").

Stewart, the facts in *Smith* were similar to those found in *Katz*.⁶¹ Justice Stewart determined that the petitioner's expectation of privacy was one that society would consider reasonable.⁶² For Justice Stewart, it was not enough that the subject matter of the communications was protected;⁶³ he explained that no telephone subscriber would want to reveal to the world a list of the local or long distance phone numbers s/he has dialed.⁶⁴ Justice Stewart reasoned, "[T]his is not because such a list might in some sense be incriminating, but because it easily could reveal the identities of the persons and the places called, and thus reveal the most intimate details of a person's life."⁶⁵

B. Law Enforcement Agents Dig a Little Deeper and Find a Solution in the Garbage

At this juncture in Fourth Amendment jurisprudence, a case would turn upon a court's decision on whether the defendant's expectation of privacy was reasonable. In *Katz*, Justice Harlan determined that a person must first exhibit an actual, or subjective, expectation of privacy.⁶⁶ The defendant in *Katz* entered the telephone booth, closed the door, and paid for the call, thus exhibiting an actual or subjective expectation of privacy.⁶⁷ It remained clear, however, that for Fourth Amendment purposes, the Constitution permitted law enforcement agents to discover activities, objects, or statements that were in "plain view." Those activities, objects, or statements do not require a search warrant. One such object is garbage.

In *California v. Greenwood*,⁶⁸ the Court held that individuals do not have a reasonable expectation of privacy in garbage in opaque bags

61. See *Smith*, 442 U.S. at 747 (Stewart, J., dissenting).

62. See *id.*

63. See *id.* at 748.

64. See *id.*

65. *Id.*

66. See *Katz v. United States*, 389 U.S. 347, 361 (1967) (Harlan, J., concurring) (explaining that a person who exposes "objects, activities, or statements" to the "plain view" of the public, has not exhibited an actual expectation of privacy). By conversing in the open, a person loses their Fourth Amendment protection against being will not be protected against being overheard. See *id.* According to Justice Harlan, the individual must exhibit an actual, or subjective, expectation of privacy. See *id.* In *Katz*, the defendant exhibited a subjective expectation by entering the telephone booth and closing the door. See *id.*

67. See *id.* (concluding that even though the telephone booth is accessible to the public, it is a "temporarily private place" where the momentary occupants have a reasonable expectation of privacy).

68. 486 U.S. 35 (1988).

placed outside their homes for sanitation collection.⁶⁹ Relying on the standard developed in *Katz*, the majority held that although the petitioner adhered to a local ordinance by disposing his trash at the curb, he conveyed it voluntarily to third parties such as "animals, children, scavengers, [or] snoops."⁷⁰

Justice Brennan, dissenting, stated that society should deem the petitioner's expectation of privacy reasonable because even "a single bag of trash" reveals the intimate details of an individual's life.⁷¹ Similar to Justice Stewart's dissent in *Smith*, Justice Brennan determined that because the police procedure revealed intimate details, it constituted a search within the meaning of the Fourth Amendment.⁷²

C. Law Enforcement Agents, Along with Drug Sniffing Canines, Smell Something in the Air

Based on the Court's decision in *Greenwood*, law enforcement officials are now able to sift through and collect trash that one has left in front of his or her house.⁷³ In essence, the garbage has been "released" from the house; thus, it is open to the public. This idea of release and emanation is important in *Greenwood*, and became important in *United States v. Place*,⁷⁴ where the Court found again that a police activity was not a search because there was no reasonable expectation of privacy.⁷⁵

In *Place*, officers who received a tip that the defendant might be in possession of drugs stopped him in an airport.⁷⁶ A dog designated for drug sniffing "alerted"⁷⁷ officers to the presence of drugs in the luggage.⁷⁸

69. See *id.* at 40-41.

70. *Id.* at 40.

71. See *id.* at 50 (Brennan, J., dissenting) (stating that "[l]ike rifling through desk drawers or intercepting phone calls, rummaging through trash can divulge the target's financial and professional status, political affiliations and inclinations, private thoughts, personal relationships, and romantic interests").

72. See *id.* at 50-51 (Brennan, J., dissenting).

73. See *id.* at 40-41.

74. 462 U.S. 696 (1983).

75. See *id.* at 698.

76. See *id.* at 698-99.

77. See *State v. Boyce*, 723 P.2d 28, 29 n.2 (Wash. Ct. App. 1986). An officer's description of an "alert" is as follows:

[I]t usually starts off with an intensive sniffing of the area, followed usually by what we call a tail flag, the tail will rise and hair at the base of the tail usually comes up a little bit. That's usually followed by an aggressive pouring or scratching at the article, the area which she's alerting on, and can be followed by a biting sequence if I allow it to go that far.

Id.

78. See *Place*, 462 U.S. at 699.

The *Place* Court concluded that an alert by a narcotics-sniffing, trained dog establishes the requisite probable cause needed to conduct a further, more thorough, search.⁷⁹ The Court, in concentrating on the petitioner's expectation of privacy, focused upon the nature of the technique used in investigating the luggage.⁸⁰ Oddly, the Court returned to its earlier decisions based on the physical aspect of the procedure, concluding that a canine sniff did not constitute a Fourth Amendment search because it requires neither the opening of luggage nor the rummaging through its contents.⁸¹ In addition, the Court emphasized that the specially trained dog was capable only of detecting the presence of narcotics.⁸² Thus, canine sniffs are a minimally intrusive means of executing the strong interest of curtailing the trafficking of narcotics.⁸³

D. The Reliance Upon the Intimate Details Standard

On occasion, the Court has declined to apply the reasonable expectation of privacy standard set forth in Justice Harlan's concurrence in *Katz*.⁸⁴ One such instance involved the intimate details standard that Justice Stewart first articulated in his *Smith* dissent.⁸⁵ *Dow Chemical Co. v. United States*⁸⁶ also addresses the intimate details standard. The Supreme Court in *Dow* noted that aerial photography of a chemical company's industrial complex was not a search within the meaning of the Fourth Amendment.⁸⁷ The Court concluded that the petitioner did not have a reasonable expectation of privacy in the open areas of the industrial complex.⁸⁸ Chief Justice Burger, writing for the majority, made a distinction between the covered buildings and offices in the complex, in which *Dow* maintained a legitimate expectation of privacy, and the rest of the complex, where no intimate activities took place.⁸⁹

Although *Dow* went to great lengths to create and maintain "elaborate security" at the complex, it failed to cloak all of its manufacturing

79. *See id.* at 706.

80. *See id.* at 705.

81. *See id.* at 707.

82. *See id.*

83. *See id.* at 706-07.

84. *See generally Greenwood*, 486 U.S. 35, 40-42 (1988); *Place*, 462 U.S. at 705-07.

85. *See Smith*, 442 U.S. 735, 747-48 (1979) (Stewart, J., dissenting).

86. 476 U.S. 227 (1986).

87. *See id.* at 239.

88. *See id.*

89. *See id.* at 236 (stating that the "intimate activities associated with family privacy and the home and its curtilage simply do not reach the outdoor areas or spaces between structures and buildings of a manufacturing plant").

equipment from aerial view.⁹⁰ In concluding that no Fourth Amendment violation occurred, the Court relied heavily on the fact that the Environmental Protection Agency's (EPA's) aircraft was lawfully within navigable airspace when it was photographing the industrial complex.⁹¹ Therefore, the government was not physically trespassing on the property.⁹² In further support of its argument, the Court stressed that the EPA's camera, although expensive and extremely precise, was not a "unique sensory device."⁹³ The Court opined that the photographs "[were] not so revealing of intimate details as to raise constitutional concerns."⁹⁴ The Court held that if the government's means could record conversations, see inside buildings, or reveal other intimate details, then they might fall within the constraints of the Fourth Amendment.⁹⁵

Dissenting, Justice Powell pointed out that the majority relied upon a disapproved theory.⁹⁶ Joined by Justices Brennan, Marshall, and Blackmun, Justice Powell argued that the majority's decision could not be reconciled with the Supreme Court's decision in *Katz*.⁹⁷ He contended that Dow's expectation of privacy throughout the entire complex was one that society was prepared to recognize as reasonable.⁹⁸ Therefore, the EPA's surveillance should have constituted a search within the meaning of the Fourth Amendment as defined in *Katz*.⁹⁹

Dow was unique in the sense that it involved an industrial complex, versus an individual's private residence, which Justice Harlan described

90. *See id.* at 229.

91. *See id.* at 238.

92. *See id.* at 238 (citing *Oliver v. United States*, 466 U.S. 170, 179 (1984), for the position that the "public and police lawfully may survey lands from the air").

93. *See id.* at 238 (distinguishing the standard, precision aerial mapping camera used by the EPA from the highly sophisticated surveillance devices generally not available to the public).

94. *Id.*; *see also* Bernstein, *supra* note 1, at 584 n.59 (noting that federal circuit courts often cite these statements when upholding physically unintrusive government surveillance).

95. *See Dow*, 476 U.S. at 238-39.

96. *See id.* at 252 (Powell, J., dissenting) (arguing that the majority's holding that the "warrantless photography does not constitute an unreasonable search within the meaning of the Fourth Amendment is based on the absence of any physical trespass—a theory disapproved in a line of cases beginning with the decision in *Katz v. United States*"). Justice Powell recognized that Dow Chemical Company expended energy in concealing a portion of its plant. *See id.* The government officials were able to get a view that is not available to the public, except by helicopter or plane. *See id.* at 249-50. But, the fact that there was no physical intrusion upon the property was no longer important according to Supreme Court precedence. *See id.* at 250.

97. *See id.* at 244, 246-47 (Powell, J., dissenting).

98. *See id.* at 248-49 (Powell, J., dissenting).

99. *See id.* (Powell, J., dissenting).

in *Katz* as the place where one expects privacy.¹⁰⁰ But in *California v. Ciraolo*,¹⁰¹ the Court held that the aerial observation of a fenced-in backyard of a home without a warrant was also not a "search" within the meaning of the Fourth Amendment.¹⁰² Employing the intimate details standard set forth in *Dow*, the *Ciraolo* majority concluded that the government's aerial observation of the petitioner's fenced-in backyard did not reveal any intimate details.¹⁰³ Thus, the Court noted that the petitioner did not have a reasonable expectation of privacy in his own property.¹⁰⁴

Justice Powell, dissenting in *Ciraolo*, argued that the surveillance was of an indiscriminate nature because the photographs revealed more than merely the respondent's curtilage.¹⁰⁵ The photographs also included the houses and yards of the respondent's neighbors, along with the respondent's own house.¹⁰⁶ Justice Powell criticized the Court for straying away from the *Katz* standard and cautioned that modern technology poses an increasing threat to an individual's personal freedoms and liberties.¹⁰⁷ According to Justice Powell, the Court's decision would have serious implications for outdoor family activities occurring in the curtilage of the home, and warned that aerial surveillance was perhaps as invasive on

100. See *Katz v. United States*, 389 U.S. 347, 361 (1967) (Harlan, J., concurring) (stating that the expectation of privacy in one's home is one which "society is prepared to recognize as 'reasonable'").

101. 476 U.S. 207 (1986).

102. See *id.* at 215.

103. See *Ciraolo*, 476 U.S. at 215 n.8 (arguing that aerial observation of curtilage may become intrusive, "either due to physical intrusiveness or through modern technology which discloses to the senses those intimate associations, objects or activities [which would] otherwise be imperceptible to police or fellow citizens").

104. See *id.* at 212-14.

105. See *id.* at 225 & n.10 (Powell, J., dissenting) (arguing that aerial surveillance is almost as intrusive on a family's privacy as someone physically trespassing upon one's property). Justice Powell argues that the majority's holding will do very little to protect the privacy of the family. See *id.* Justice Powell also warns that, after the majority's holding, families can "expect to be free of official surveillance only when they retreat behind the walls of their homes." *Id.*

106. See *id.* at 225.

107. See *id.* at 226.

While the rule in *Katz* was designed to prevent silent and unseen invasions of Fourth Amendment privacy rights in a variety of settings, we have consistently afforded heightened protection to a person's right to be left alone in the privacy of his house. The Court fails to enforce that right or to give any weight to the long-standing presumption that warrantless intrusions into the home are unreasonable.

Id.

family privacy as physical trespass.¹⁰⁸

III. THE LACK OF A STRICTER DEFINITION OF INTIMATE DETAILS CREATES CONFUSION IN THE LOWER COURTS

A. *The Intimate Details Standard*

In his dissenting opinion in *California v. Ciraolo*,¹⁰⁹ Justice Powell recalled that the Fourth Amendment "reflects a choice that our society should be one in which citizens 'dwell in reasonable security and freedom from surveillance.'" ¹¹⁰ Justice Powell stated:

While no single consideration has been regarded as dispositive, "the Court has given weight to such factors as the intention of the Framers of the Fourth Amendment, . . . the uses to which the individual has put a location, . . . and our societal understanding that certain areas deserve the most scrupulous protection from government invasion."¹¹¹

Over time, the Court's view of privacy invasions in and around the home has shifted from presumptively unconstitutional, as in Justice Harlan's dissent in *Katz*, to the more permissive standard in *Ciraolo*.¹¹² Accordingly, the government can conduct a surveillance that does not involve physical trespass without a warrant, so long as the surveillance only reveals objects and activities that would not be considered intimate details.¹¹³ This test applies even if the technology in question has the capability of revealing these intimate details.¹¹⁴ Unless the individual can prove that the particular warrantless government surveillance has actu-

108. See *id.* at 225 n.10 (arguing that after the Court's ruling in *Ciraolo*, families can be guaranteed freedom from government surveillance only when they remain inside their homes, behind the walls, away from the permitted intrusions of aerial observation).

109. 476 U.S. 207 (1986).

110. *Id.* at 217 (Powell, J., dissenting) (quoting *Johnson v. United States*, 333 U.S. 10, 14 (1948)).

111. *Id.* at 220 (quoting *Oliver v. United States*, 466 U.S. 170, 178 (1984)).

112. See *Florida v. Riley*, 488 U.S. 445, 463 (1989) (Brennan, J., dissenting) (stating that the consequence of the plurality's analysis is that Fourth Amendment rights are infringed only if police surveillance "interferes with the use of the backyard as a garden spot," presuming that the police performing the surveillance were within their rights).

113. See *United States v. Ford*, 34 F.3d 992, 993 (11th Cir. 1994) (holding that the use of a thermal imager did not constitute a "search" because no intimate details were revealed).

114. See *Riley*, 488 U.S. at 448-52 (holding that even though the search revealed that the respondent had surrounded his yard with wire fencing and had posted "Do Not Enter" signs, and that trees, shrubs, and the respondent's mobile home hid the greenhouse where the cultivation took place from view, the police did not observe any intimate details connected with the use of the home or curtilage).

ally revealed such details, the Court considers the surveillance constitutional.¹¹⁵ This result negates the basic premise of the Fourth Amendment and the holding in *Katz* that one's expectation of privacy in the home and curtilage is, for the most part, reasonable.¹¹⁶

The Court, having decided two cases involving aerial observation of property, determined the extent to which law enforcement officials may use aerial observation to "see" real property and into homes. In *Florida v. Riley*,¹¹⁷ a plurality of the Court concluded that government officials may "search" the curtilage of an individual's home from the air,¹¹⁸ as long as the surveillance does not reveal any intimate details.¹¹⁹ In *Riley*, the law enforcement officer observed with his naked eye, from a helicopter circling at an altitude of 500 feet, the interior of a partially covered greenhouse in a residential backyard.¹²⁰ The Court declined to extend Fourth Amendment protection over the curtilage in question because the observation revealed no intimate details.¹²¹ Justice Brennan, dissenting, questioned how the majority's opinion would protect owners of lawful, innocent, partially enclosed greenhouses.¹²²

The *Riley* decision is significant because previous Court decisions regarded the curtilage of one's home as deserving of the same paramount

115. See *id.* at 455 (holding that police conduct is not a search when no intimate details are revealed).

116. See *Dow Chem. Co. v. United States*, 476 U.S. 227, 244 (1986) (Powell, J., concurring in part and dissenting in part) (arguing that the majority's opinion, which held that the taking of aerial photographs of an industrial plant was not a violation of the Fourth Amendment, did not concur with the decision in *Katz*). Dow Chemical Company exhibited an expectation of privacy of the industrial plant by attempting to conceal certain things from the public view. See *id.* at 235. The majority, however, according to Justice Powell, based its decision on the fact that the government officials never physically entered upon the property. See *id.* at 244 (Powell, J., concurring in part and dissenting in part). Thus, according to Justice Powell, the majority diverged from the standard established in *Katz*. See *id.*

117. 488 U.S. 445 (1989).

118. See *id.* at 452 (O'Connor, J., concurring) (noting that although the search in *Riley* actually revealed the curtilage of the property, the Supreme Court has considered the curtilage as deserving of the same protection as the house).

119. See *id.* at 452 (O'Connor, J., concurring) (emphasizing the significance of curtilage in Fourth Amendment jurisprudence because it is an area intimately linked to the home).

120. See *id.* at 450.

121. See *id.* at 452.

122. See *id.* at 464 (Brennan, J., dissenting). "If the Constitution does not protect *Riley*'s marijuana garden against such surveillance, it is hard to see how it will prohibit the government from aerial spying on the activities of a law-abiding citizen on her fully enclosed outdoor patio." *Id.*

protection as the inside of the home.¹²³ Under the Court's holding in *Riley*, it becomes apparent that the Fourth Amendment no longer affords the same presumptive protection to the home itself.¹²⁴ Following *Riley*, the location of surveillance is no longer relevant; instead, the objects police observe will determine the constitutionality of the search.

B. The Circuit Courts' Reliance Upon Katz and Their Reluctance to Find the Defendant's Expectation of Privacy to be Reasonable in Thermal Imaging Cases

A number of circuit courts, in reviewing challenges to the warrantless use of thermal imaging devices by law enforcement agents, have often found such devices to be constitutional within the meaning of the Fourth Amendment.¹²⁵ In these cases, government agents have relied upon thermal imagers to discover hot spots that have allegedly revealed the use of high intensity lights, which are often associated with the cultivation of marijuana.¹²⁶ In these cases, the government agents used the re-

123. See *Dow Chem. Co. v. United States*, 476 U.S. 227, 235-36, 238 (1986) (holding that aerial observation of an industrial complex was permitted, but warning that the aerial observation of curtilage may become invasive, either due to physical intrusiveness or through modern technology if it discloses intimate associations, objects, or activities otherwise undetectable to law enforcement or to the public).

124. See *Riley*, 488 U.S. at 448-52 (holding that even though the surveillance covered the home and curtilage, it did not constitute a search because it revealed no intimate details).

125. See *United States v. Ishmael*, 48 F.3d 850, 853 (5th Cir. 1995) (holding that the warrantless use of a thermal imager did not violate the Fourth Amendment). The court found probable cause for a search warrant based on the Drug Enforcement Administration's (DEA's) information concerning the defendant's elaborately constructed substructure with its own electricity supply and its own water supply from a nearby pond, the continuous use of an exhaust fan, and a check of phone records to various horticultural shops. See *id.* at 852; see also *United States v. Myers*, 46 F.3d 668, 669-70 (7th Cir. 1995) (holding, as a matter of first impression, that thermal imaging scanning is not a "search" within the meaning of the Fourth Amendment); *United States v. Ford*, 34 F.3d 992, 997 (11th Cir. 1994); *United States v. Pinson*, 24 F.3d 1056, 1058-59 (8th Cir. 1994). But see *United States v. Cusumano*, 67 F.3d 1497, 1500-01 (10th Cir. 1995), *vacated en banc*, 83 F.3d 1247 (10th Cir. 1996) (raising the possibility that thermal scans without a warrant violate the Fourth Amendment and arguing that other circuit courts have "misframed" the Fourth Amendment inquiry); cf. *United States v. Kyllo*, 140 F.3d 1249, 1255 (9th Cir. 1998), *withdrawn*, 184 F.3d 1059 (9th Cir. 1999), *superseded on reh'g*, 190 F.3d 1041, 1043 (9th Cir. 1999). The Ninth Circuit initially held that the warrantless use of thermal imaging to scan the home in order to detect a marijuana growing operation violated the Fourth Amendment because the defendant had manifested a subjective expectation of privacy in his residence. See *Kyllo*, 140 F.3d at 1255. The court later withdrew that opinion, see *Kyllo*, 184 F.3d at 1059, and held that no Fourth Amendment violation occurred. See *Kyllo*, 190 F.3d at 1043.

126. See *Kyllo*, 140 F.3d at 1250-51; *Ishmael*, 48 F.3d at 851-52; *Myers*, 46 F.3d at 669; *Ford*, 34 F.3d at 993; *Pinson*, 24 F.3d at 1057-58.

sults of the thermal imaging as probable cause to obtain search warrants for the defendants' premises.¹²⁷ In each case, the defendants have moved to suppress the evidence obtained through the thermal imaging on the grounds that the warrantless use of a thermal imaging device is a violation of the Fourth Amendment.¹²⁸ Furthermore, these defendants argue that the court should exclude evidence at trial because the subsequent search warrants were illegal.¹²⁹

The Eighth Circuit, in *United States v. Pinson*,¹³⁰ reviewed a challenge on Fourth Amendment grounds to the use of thermal imagers.¹³¹ The court held that the government did not violate the Fourth Amendment when it employed thermal imaging to detect marijuana cultivation without a search warrant.¹³² The Eighth Circuit, applying the *Katz* analysis, concluded that even if the defendant had exhibited an actual or subjective expectation of privacy, society did not recognize that expectation of privacy as reasonable.¹³³ The court noted a similarity between thermal imaging and the warrantless use of drug-sniffing police dogs that the Supreme Court had upheld in *United States v. Place*.¹³⁴ Finding specifically that heat waste and smell are analogous, the Eighth Circuit stated that the police did not intrude into the home, nor did they intrude upon the individuals within the home.¹³⁵ The court further held that the police did not observe any intimate details of the home.¹³⁶ The court concluded that "[N]one of the interests which form the basis for the need for protection of a residence, namely the intimacy, personal autonomy and privacy associated with a home, are threatened by thermal imagery."¹³⁷

127. See *Kyllo*, 140 F.3d at 1250-51; *Ishmael*, 48 F.3d at 851-52; *Myers*, 46 F.3d at 669; *Ford*, 34 F.3d at 993; *Pinson*, 24 F.3d at 1057; see also BLACK'S LAW DICTIONARY 1201 (6th ed. 1990). Probable cause is the "reasonable ground for belief that a person should be arrested or searched . . . [t]he evidentiary criterion necessary to sustain an arrest or the issuance of an arrest or search warrant." *Id.*

128. See *Kyllo*, 140 F.3d at 1250-51; *Cusumano*, 67 F.3d at 1499; *Ishmael*, 48 F.3d at 851-52; *Myers*, 46 F.3d at 669; *Ford*, 34 F.3d at 993; *Pinson*, 24 F.3d at 1057-58.

129. See *Kyllo*, 140 F.3d at 1250-51; *Cusumano*, 67 F.3d at 1499; *Ishmael*, 48 F.3d at 851-52; *Myers*, 46 F.3d at 669; *Ford*, 34 F.3d at 993; *Pinson*, 24 F.3d at 1057-58.

130. 24 F.3d 1056 (8th Cir. 1994).

131. See *id.* at 1056-59.

132. See *id.* at 1059.

133. See *id.* at 1058-59.

134. See *id.* at 1058; see also *United States v. Place*, 462 U.S. 696, 707 (1983) (holding that the use of drug-sniffing dogs in a public place does not fall within the meaning of a search for Fourth Amendment purposes).

135. See *Pinson*, 24 F.3d at 1059.

136. See *id.*

137. *Id.*; see also *Cusumano*, 67 F.3d 1497, 1508-09 (10th Cir. 1995). The court in *Cusumano* stated:

Although the Eighth Circuit did not rely specifically on *Dow*,¹³⁸ this decision influenced the court and other post-*Katz* Fourth Amendment decisions.¹³⁹ Like *Dow* and *Katz*, *Pinson* emphasized that the challenged search did not intrude upon any reasonable expectation of privacy.¹⁴⁰

The Eleventh Circuit, in *United States v. Ford*,¹⁴¹ likewise reviewed a thermal imaging case where the defendant argued against the admissibility of evidence obtained through a search of his home.¹⁴² In *Ford*, the police obtained a warrant that was based in part on the results of a thermal image scan that revealed that the defendant's home released an "inordinate amount of heat."¹⁴³ The Eleventh Circuit held that the defendant did not have a subjective expectation of privacy because he intentionally took steps to vent the heat that the thermal imaging detected.¹⁴⁴ The court further noted that even if the defendant had exhibited an actual or subjective expectation of privacy, it was one that society would not be prepared to recognize as reasonable.¹⁴⁵

To determine whether there was a reasonable expectation of privacy, the *Ford* court used a test that was nothing more than an intimate details

The dog sniff, like the thermal imager, extracts information about the interior of an object solely from an analysis of external physical phenomena [However, as] the imager lacks the precision of the dog sniff, we decline to extend *Place* to allow the warrantless use of thermal imagers upon a home.

Id.

138. 476 U.S. 227 (1986).

139. See *Pinson*, 24 F.3d at 1058-59 (holding that the search in question did not violate the Fourth Amendment because the defendant's expectation of privacy was not one society would be prepared to call reasonable). The court likens the thermal scan to the "warrantless use of police dogs trained to sniff and identify the presence of drugs." *Id.* at 1058. The dog sniff is like the thermal imager in the sense that it "extracts information about the interior of an object solely from an analysis of external physical phenomena." *Id.* The court points out, however, that because the thermal imager does not have the precision that the dog sniff has, the court declined to extend *Place* to allow the warrantless use of thermal imagers upon a home. See *id.*; see also *Place*, 462 U.S. 696, 707 (1983).

The Eighth Circuit also stated that the detection of the emanated heat does not constitute an intrusion into the home. See *Pinson*, 24 F.3d at 1059. The court found that "no intimate details of the home were observed, and there was no physical intrusion upon the privacy of the individuals within." *Id.* The court concluded that "[n]one of the interests which form the basis for the need for protection of a residence, namely the intimacy, personal autonomy and privacy associated with a home, are threatened by thermal imagery." *Id.*

140. See *Pinson*, 24 F.3d at 1059; see also *Dow*, 476 U.S. at 238-39; *Katz v. United States*, 389 U.S. 347, 360-61 (1967) (Harlan, J., concurring).

141. 34 F.3d 992 (11th Cir. 1994).

142. See *id.* at 993.

143. *Id.*

144. See *id.* at 995.

145. See *id.* at 995, 997.

analysis.¹⁴⁶ The court stated that “[o]ne such value that has emerged as a significant factor in the [Supreme] Court’s Fourth Amendment analysis is the intimacy of detail and activity that a surveillance technique reveals in a particular case.”¹⁴⁷ The court relied on *Dow* for the principle that even if sophisticated surveillance equipment is used, no warrant will be required by the Fourth Amendment unless the technique reveals intimate details.¹⁴⁸ The court concluded that based upon the evidence, “no intimate details connected with the use of the home or curtilage were observed,” so there was no violation of the Fourth Amendment.¹⁴⁹

The Seventh Circuit, in *United States v. Myers*,¹⁵⁰ also held that the practice of using thermal imaging of the defendant’s home did not constitute a “search” within the meaning of the Fourth Amendment.¹⁵¹ Relying on the Eighth Circuit’s decision in *Pinson*, the court held that even if the defendant had a subjective expectation of privacy, society was not prepared to recognize such an expectation of privacy as reasonable.¹⁵² The court found that the interests that require protection of a residence, specifically intimacy, personal autonomy, and privacy, are not threatened or damaged by the use of thermal imaging.¹⁵³ Cases claiming that the use of thermal imagers constitutes searches within the meaning of the Fourth Amendment have increased as the use of thermal imaging grows in popularity with law enforcement agencies.

In *United States v. Ishmael*,¹⁵⁴ the Fifth Circuit held that “the crucial inquiry, as in any search and seizure analysis, is whether the technology reveals ‘intimate details.’”¹⁵⁵ The court held that the warrantless use of a thermal imager was not a violation of the Fourth Amendment.¹⁵⁶ Specifically, the court found that thermal imaging was acceptable under the Fourth Amendment because it did not reveal intimate details within the scanned structure.¹⁵⁷

146. *See id.* at 996.

147. *Id.* at 996.

148. *See id.*

149. *See id.* at 996-997 (quoting *Florida v. Riley*, 488 U.S. 445, 452 (1989)).

150. 46 F.3d 668 (7th Cir. 1995).

151. *See id.* at 670.

152. *See id.*

153. *See id.* (citing *United States v. Pinson*, 24 F.3d 1056, 1059 (8th Cir. 1994)).

154. 48 F.3d 850 (5th Cir. 1995).

155. *Id.* at 855.

156. *See id.* at 857.

157. *See id.* at 856 (stating that the thermal imager scans only heat differentials in objects (not the objects themselves), thus adding no threat to the privacy expectations that the Fourth Amendment is designed to protect).

In *Ishmael*, the petitioners had expended significant energy to conceal their marijuana growing and distribution business, including manually mixing the concrete they purchased in order to build the facility.¹⁵⁸ The Fifth Circuit concluded that the petitioners had "exhibited a subjective expectation that their hydroponic laboratory would remain private,"¹⁵⁹ thus satisfying the first part of the *Katz* analysis.¹⁶⁰ The court went on to frame the second part of the *Katz* analysis around the use of technology and the degree of sophistication of the technological device used by the

In *Ishmael*, a confidential source informed a DEA officer that he/she had delivered concrete re-mix to a secluded property owned by Rohn and Debra Ishmael. *See id.* at 851. The source stated that the Ishmaels took measures to hide their purpose for the concrete; namely, they mixed it by hand near the concrete truck and then drove the concrete to another location on the property. *See id.* Based on this information, the DEA agent went to the property and noticed two mobile homes and a trailer, but no illegal activity. *See id.* A year later, the DEA agent renewed the investigation and made another trip to the property where he found a "roughly" built road, a large hole, 60 empty bags of cement, a dump truck, and a concrete re-mixer. *See id.* When the agent checked Rohn Ishmael's criminal record, the record revealed four separate marijuana-related incidents, including several for the cultivation of marijuana. *See id.* The DEA agent then surveyed the property by air and found a mobile home and large steel building that stood next to a two-acre pond. *See id.* The agent returned to the property on foot two more times and found a structure beneath the steel building. *See id.* This substructure was installed with electrical wiring, an exhaust fan, and exposed tubes that brought water. *See id.*

The DEA agent eventually used thermal imaging on two separate occasions, one by air and the other by foot. *See id.* at 851-52. The agent subpoenaed the Ishmaels' telephone records and discovered numerous telephone calls to horticulture shops, "two of which appeared on a narcotics intelligence computer base as suppliers for other marijuana cultivators." *Id.* at 852. The agent also subpoenaed their electrical utility records, which revealed that the power usage of substructure was extraordinarily high. *See id.* The results of the thermal imaging showed an enormous amount of heat emanating from the substructure and the area surrounding it. *See id.* After the DEA agent obtained a warrant based in part on the thermal imaging readings, the DEA seized 770 marijuana plants and several firearms from the Ishmael property. *See id.*

Initially, the evidence, including the marijuana plants, was suppressed on the theory that the Ishmaels had a reasonable expectation of privacy, and because their effects, such as the secret metal building, were protected from governmental surveillance and intrusion. *See United States v. Ishmael*, 843 F. Supp. 205, 211, 212, 214 (E.D. Tex. 1994). The Fifth Circuit reversed the district court's order granting the Ishmaels' motion to suppress. *See Ishmael*, 48 F.3d at 857.

The Fifth Circuit opined that the building was in an "open field" and therefore not within any protected curtilage. *See id.* at 856-57. The building, according to the court, was outside the Ishmaels' residential curtilage because it stood 200 to 300 yards from the Ishmaels' mobile home and was not enclosed with a fence. *See id.* at 856 n.7. The court determined that when used in an "open field," the thermal imager does not violate the Fourth Amendment because it is "passive and non-intrusive." *See id.* at 857.

158. *See id.* at 851-52.

159. *Id.* at 854.

160. *See id.* at 854-55.

government agents.¹⁶¹ The court warned against the propensity for violation of rights because as technology becomes more sophisticated, there will be a greater likelihood that its use will constitute an unreasonable intrusion.¹⁶² The Fifth Circuit, however, held that as the officers enhanced their observation with a thermal imager in an "open field," there was no violation of the Fourth Amendment because it was passive and non-intrusive.¹⁶³

Most of the circuit courts that have addressed this issue have made the determination that the use of thermal imaging to detect indoor marijuana cultivation does not constitute a search within the meaning of the Fourth Amendment.¹⁶⁴ Confusion over which test to apply, however, in determining whether a procedure constitutes a search, and what constitutes intimate details, has led to inconsistency among the courts' rulings.

161. See *id.* at 855.

162. See *id.*

163. See *id.* at 857 (holding that because the "sanctity of one's home or business" was not disturbed, the DEA's warrantless use of a thermal imager in this case was not a "search" within the meaning of the Fourth Amendment). The court relied on *United States v. Pace*, 955 F.2d 270 (5th Cir. 1992), where law enforcement officers stood near the defendant's barn, which the court determined was beyond the residential curtilage, and looked inside to observe the drug operation. See *id.* at 276. The Fifth Circuit in *Pace* concluded that "there is no business curtilage surrounding a barn lying within an open field," so the officers were entitled to "come as close to the structure as necessary to look inside without physically entering." *Id.* The Fifth Circuit applied elements of the "open fields" doctrine, as well as the pre-*Katz* "physical entrance" analysis. See *id.*

In *United States v. Dunn*, 480 U.S. 294, 303-05 (1987), the Supreme Court heard a case almost identical to *Pace*. The Court accepted, for the sake of argument, that the defendant's barn was a business. See *id.* at 303. The Court noted that the officers never entered the barn nor any other structure on Dunn's premises. See *id.* at 304. The Court said, "[T]hey merely stood, outside the curtilage of the house and in the open fields upon which the barn was constructed, and peered into the barn's open front." *Id.* The Court concluded that the officers were standing in the open fields and observing the phenylacetone laboratory in the barn, which the Constitution does not forbid them to do. See *id.* The Court further asserted that this conclusion flowed "naturally from [its] previous decisions." *Id.*

164. See *United States v. Robinson*, 62 F.3d 1325, 1332 (11th Cir. 1995) (holding that an aerial surveillance of a private home through thermal detection equipment, to determine whether marijuana was being grown inside, was constitutional); see also *United States v. Ishmael*, 48 F.3d 850, 857 (5th Cir. 1995); *United States v. Myers*, 46 F.3d 668, 670 (7th Cir. 1995); *United States v. Pinson*, 24 F.3d 1056, 1059 (8th Cir. 1994). But see *United States v. Cusumano*, 67 F.3d 1497, 1510 (10th Cir. 1995), *vacated en banc*, 83 F.3d 1247 (10th Cir. 1996) (holding that the warrantless use of thermal imaging is not constitutional).

*C. Dissension From the West: Courts that Have Found the Use of
Thermal Imaging as a Search Within the Meaning of the Fourth
Amendment*

1. The Montana Supreme Court's Bold Decision

At least two courts have recently found that the right to an individual's privacy outweighs the government's interest in curtailing the cultivation and distribution of marijuana.¹⁶⁵ In *State v. Siegal*,¹⁶⁶ the Montana Supreme Court held that the use of thermal imagers in criminal investigations constituted a search under the Montana Constitution, thereby requiring a search warrant supported by probable cause.¹⁶⁷ The court further stated that the use of thermal imaging in a criminal investigation implicated Montana's uniquely protected privacy interests.¹⁶⁸

In *Siegal*, the defendants employed certain measures to maintain their privacy on their property, which was heavily wooded and completely fenced.¹⁶⁹ For example, the defendants built a small building that was adjacent to the ranch house on the property.¹⁷⁰ The police suspected that the defendants were involved in the illegal cultivation of marijuana.¹⁷¹ The police conducted a thermal imaging scan of the defendant's property from a neighbor's property about twenty-five to thirty feet from the small building, which, as it turned out, was the defendants' marijuana growing shed.¹⁷² The thermal imager indicated that the shed was discharging a

165. See generally *United States v. Kyllo*, 140 F.3d 1249, 1255 (9th Cir. 1998); *State v. Siegal*, 934 P.2d 176, 192 (Mont. 1997).

166. 934 P.2d 176 (Mont. 1997).

167. See *id.* at 192 (holding that "in the absence of a search warrant, the use of thermal imaging as a criminal investigative tool implicates Article II, Section 10 of Montana's Constitution and, [therefore] requires the demonstration of a compelling state interest, other than enforcement of the criminal law").

168. See *id.* at 180.

The privacy interests uniquely protected by Article II, Section 10 of the Montana Constitution are also implicated by the use of thermal imaging in the context of a criminal investigation and . . . the use of this technology by the government, in the absence of a search warrant, requires the demonstration of a compelling state interest other than enforcement of the criminal laws.

Id.

169. See *id.* at 178 (finding that the defendants took "numerous steps to insure their privacy including posting the property with 'No Trespassing' signs, painting the fence posts orange, maintaining perimeter and interior fences and locking the gates"). Like the defendant in *Katz*, the defendants here exhibited an actual or subjective expectation of privacy. See *id.* at 190.

170. See *id.* at 178.

171. See *id.*

172. See *id.*

considerable amount of heat, while a scan of the other buildings on the property showed normal heat emissions.¹⁷³ The police concluded that the distribution of heat energy was congruous with the presence of heat lamps typically used in marijuana cultivation, which hang from the ceiling.¹⁷⁴ The law enforcement agents then used the evidence obtained in the search to acquire warrants for the arrest of the defendants.¹⁷⁵

The court pointed out that cases from other jurisdictions discussing the warrantless use of thermal imaging “have generally used at least one of the following three approaches: the waste-heat approach, the canine-sniff approach, or the technological approach.”¹⁷⁶ Under the “waste-heat approach,” courts have analogized the released heat to garbage left outside the home for sanitation collection.¹⁷⁷ The *Siegal* court rejected the “waste-heat approach” because of the presence of obvious differences between garbage and heat.¹⁷⁸ The court concluded that waste-heat can only be detected by means of a technologically advanced device while garbage can be studied simply by hand.¹⁷⁹

Citing *United States v. Place*,¹⁸⁰ the *Siegal* court noted that many courts have analogized the use of thermal imaging with the use of specially trained drug-detecting dogs to determine that a thermal imaging search does not violate the Fourth Amendment.¹⁸¹ The *Siegal* court rejected this approach as well, however, noting that while thermal imaging provides

173. *See id.*

174. *See id.*

175. *See id.*

176. *Id.* at 185.

177. *See id.* (holding that “since a warrant is not required to examine curbside garbage, these courts reason that, in the same way, no warrant is required to examine heat discarded from one’s home”).

178. *See id.* at 186 (concluding that the heat was not readily accessible to “animals, children, scavengers, snoops, and other members of the public,” as the garbage had been in *Greenwood*). Also, “since dissipation is an inevitable result of heat production, it does not require a deliberate act nor is it preventable in the same way that one can conceal incriminating garbage.” *Id.* One does not have to leave the garbage on the street, making it available to the public. *See id.* at 185-86. Instead, one may choose to keep the garbage inside or may dispose of it in another location, where individuals would be less likely to study its contents. *See id.* In this way, leaving garbage on the street requires a conscious decision and action. *See id.* Heat dissipation, on the other hand, requires nothing of the user. *See id.* at 186.

179. *See id.* at 180 (citing Michael L. Huskins, *Marijuana Hot Spots: Infrared Imaging and the Fourth Amendment*, 63 U. CHI. L. REV. 665 (1996) (stating that the laws of thermodynamics dictate that no matter how much one insulates, heat will still escape from a structure; but, the fact that one insulates to keep heat inside a structure indicates a “subjective expectation of privacy.”)).

180. 462 U.S. 696 (1983).

181. *See Siegal*, 934 P.2d at 186-87.

information regarding heat emissions of both an illegal and legal nature, the use of canine-sniffs only provides information regarding the illegal activity of narcotic possession.¹⁸² The court, however, did not accept the analogy that just as the smell of narcotics does *not* necessarily imply their presence, the radiation of inordinate amounts of heat does *not* necessarily imply that one is acting illegally.¹⁸³

In examining the "technological approach," which involves the analysis of underlying technological and scientific principles involved in the device used, the court determined that the law enforcement officials' use of a thermal imager was not a search because this technology could not reveal any "intimate details" of the activities taking place within the home, or within this case, the small building.¹⁸⁴ The court agreed with the Tenth Circuit's conclusion in *United States v. Cusumano*¹⁸⁵ that the pertinent inquiry is whether the defendants possess "an expectation of privacy in the heat signatures of the activities, intimate or otherwise, that they pursue within their home"¹⁸⁶ that they do not knowingly display to the general public.¹⁸⁷ From this analysis, the *Siegal* court concluded that the defendants met the first prong of the *Katz* test by exhibiting an actual or subjective expectation that the operation on their property, in a small shed, would remain private.¹⁸⁸

In determining whether an individual has a reasonable expectation of privacy, the Tenth Circuit emphasized the crucial principle of expecting privacy in the home.¹⁸⁹ The *Siegal* court relied on the notion that the citizens of Montana deeply embrace the right of privacy¹⁹⁰ and have a different opinion of what constitutes a reasonable expectation of privacy.¹⁹¹

182. See *id.* at 187 (finding that a thermal imager cannot limit its detection solely to information regarding illegal activities). A thermal imager is indiscriminate, in that it imposes itself upon activities both legal and illegal. See *id.*

183. See *id.*

184. See *id.* at 187-88.

185. 67 F.3d 1497 (10th Cir. 1995).

186. *Id.* at 1502.

187. See *Siegal*, 934 P.2d at 190.

188. See *id.*

189. See *id.* (stating that the "law enforcement officers in this case before us admitted that they also used the thermal imager to scan the [d]efendants' residence, a place where an individual has the greatest expectation of privacy"). In this situation, the court reasoned that the people of Montana would find an expectation of privacy in the home reasonable. See *id.*

190. See *id.*

191. See *id.* (stating that Montana's citizens would be "shocked" and would consider it a "gross invasion of their privacy to learn that the government could, without their consent . . . monitor the heat signatures created by activities conducted within the confines of their private homes and enclosed structures for the purpose of drawing inferences about the

The court concluded that the warrantless use of thermal imaging as a criminal investigative tool implicates Article II, section 10 of Montana's Constitution, and therefore requires the state to demonstrate a compelling state interest, other than the enforcement of the criminal law, in order to comply with the Fourth Amendment.¹⁹² Without a sufficient demonstration of such an interest, the *Siegal* court held that Montana could not utilize the thermal imaging device constitutionally without a properly executed warrant.¹⁹³

2. The Ninth Circuit's Step Forward

In 1998, the Ninth Circuit Court of Appeals held, in *United States v. Kyllo*,¹⁹⁴ "as a matter of first impression," that the warrantless use of a thermal imager to scan a home in order to detect marijuana cultivation violated the Fourth Amendment.¹⁹⁵ Before this decision, in 1994, the Ninth Circuit had ruled on *Kyllo* and focused its concern upon the intimate details that the thermal scan could reveal.¹⁹⁶ *Kyllo*, the defendant,

legality of such activities").

192. See *id.* at 192 (holding that there was no demonstration of a compelling state interest by the government). The court found that the use of thermal imaging at issue violated the defendants' right to privacy, guaranteed under Article II, section 10 of Montana's Constitution. See *id.* Further, the court interpreted Montana's Constitution to mean that Montana must demonstrate a compelling state interest in order to use thermal imaging, thus making it more difficult for the government to violate an individual's expectation of privacy. See *id.*

193. See *id.*

194. 140 F.3d 1249 (9th Cir. 1998), *withdrawn*, 184 F.3d 1059 (9th Cir. 1999), *superceded on reh'g*, 190 F.3d 1041 (9th Cir. 1999). The Ninth Circuit initially held that the warrantless use of thermal imaging to scan the home in order to detect a marijuana growing operation violated the Fourth Amendment because the defendant had manifested a subjective expectation of privacy in his residence. See *Kyllo*, 140 F.3d at 1255. The court later withdrew that opinion, see *Kyllo*, 184 F.3d at 1059, and held that no Fourth Amendment violation occurred. See *Kyllo*, 190 F.3d at 1043. Accordingly, the constitutional analysis in the 1998 opinion is not the current law in the Ninth Circuit. Although the 1998 opinion has been withdrawn, it provides a good example of how a federal court confronted with thermal imaging issues in the future might deal with them.

195. 140 F.3d at 1255 (9th Cir. 1998).

196. See *United States v. Kyllo*, 37 F.3d 526, 530-31 (9th Cir. 1994), *rev'd and remanded*, 140 F.3d 1249 (9th Cir. 1998), *withdrawn*, 184 F.3d 1059 (9th Cir. 1999), *superceded on reh'g*, 190 F.3d 1041 (9th Cir. 1999). One of the early *Kyllo* opinions stated that the courts would be required to investigate the capacity of the thermal imaging device to reveal intimate details. See 37 F.3d at 530-31. The court reasoned that if the thermal imaging device could reveal human forms and their activities, then it would effectuate an unconstitutional search in violation of the Fourth Amendment. See *id.* The court explained:

[W]e must decide whether *Kyllo* exhibited an actual expectation of privacy and whether that expectation is one that society is prepared to acknowledge as reasonable. But this inquiry cannot be conducted in the abstract. We must have some factual basis for gauging the intrusiveness of the thermal imaging device,

appealed the denial of a motion to suppress all evidence received in a search of his residence.¹⁹⁷ The warrant used by the governmental agents had been predicated on the results of a thermal imaging of Kyllo's residence, conducted to detect the presence of heat lamps used in the growth of marijuana.¹⁹⁸ The Ninth Circuit remanded the case to the district court for a factual determination of the technological capacity of the thermal imaging device.¹⁹⁹ The court decided that it needed a factual basis on which to determine whether the defendant had a reasonable expectation of privacy.²⁰⁰ The Ninth Circuit directed the district court to determine whether "on the one extreme, this device can detect sexual activity in the bedroom, . . . or at the other extreme, whether it can only detect hot spots where heat is escaping from a structure."²⁰¹

The Ninth Circuit cited *Dow* for the proposition that particular warrantless government surveillance will only be unconstitutional if it reveals intimate details.²⁰² But, the Ninth Circuit deviated from the analysis in *Dow* by requiring an investigation into the capacity of the thermal imaging device to reveal intimate details.²⁰³ If the device could observe and

which depends on the quality and the degree of detail of information that it can glean.

Id. (citations omitted).

197. *See id.* at 528.

198. *See id.*

199. *See id.* at 531.

200. *See id.* at 530-31.

201. *Id.* (stating that the issues are whether Kyllo exhibited an actual expectation of privacy and whether that expectation is one that society is prepared to acknowledge as reasonable).

A United States Bureau of Land Management agent investigated a suspected marijuana cultivation and distribution operation, and discovered information suggesting Kyllo was involved. *See id.* at 1250. The information was further supported by Oregon state law enforcement officers, including that Kyllo lived with his wife and other suspects in the investigation. *See id.* at 1250-51. Moreover, Kyllo allegedly had told a police informant that he and his wife could supply the informant with marijuana and in the previous month, police arrested Kyllo's wife for delivery and possession of a controlled substance. *See id.* Suspecting marijuana cultivation, the agent subpoenaed Kyllo's utility records. *See id.* The records indicated that Kyllo's electricity use was abnormally high. *See id.* The agent, therefore, requested a thermal imaging scan of Kyllo's home. *See id.*

The thermal imaging scan revealed abnormally high levels of heat emanating from Kyllo's home. *See id.* The agent concluded that the heat signature indicated the presence of high intensity light often used to cultivate marijuana indoors. *See id.* Thus, the agent presented an affidavit to a federal magistrate judge who issued a search warrant for Kyllo's home. *See id.* During the search, the agent observed an indoor marijuana cultivation operation and seized marijuana, weapons, and drug paraphernalia. *See id.* Kyllo was indicted on one count of the manufacture of marijuana. *See id.*

202. *See id.* at 531 n.3 (citing *Dow Chem. Co. v. United States*, 476 U.S. 227, 238 (1986)).

203. *See id.* at 530-31.

reveal human forms and their activities, the court was prepared to hold such a search unconstitutional under the Fourth Amendment.²⁰⁴

On remand, the district court held that the use of thermal imagers was not an intrusion into the Kyllo's home.²⁰⁵ The district court concluded that police neither observed intimate details of the home, nor intruded upon the privacy of the residents within the home.²⁰⁶ The district court made the factual finding that the thermal imager could not penetrate the walls or windows to reveal conversations or human activities.²⁰⁷ Therefore, the district court held that the use of thermal imaging was not a search within the meaning of the Fourth Amendment.²⁰⁸

This decision held as a matter of first impression, "that the warrantless use of thermal imagers to scan homes in order to detect marijuana cultivation was a violation of the Fourth Amendment."²⁰⁹ The decision was written by the Honorable Robert R. Merhige, Jr., Senior United States District Judge for the Eastern District of Virginia, who was sitting by designation.²¹⁰ The issue arose out of the United States Bureau of Land Management's investigation of a suspected marijuana growth and distribution operation when the Bureau requested that a member of the Oregon National Guard examine the defendant's home using an Agema Thermovision 210 thermal imaging device.²¹¹

In analyzing whether the petitioners had met the first prong of the *Katz* test, the Ninth Circuit determined that the petitioners had a reasonable expectation of privacy in their home.²¹² The court stated that, "[s]urely a defendant, such as Kyllo, who moves his agricultural pursuits inside his house has similarly manifested a subjective expectation of pri-

204. *See id.*

205. *United States v. Kyllo*, No. CR. 92-51-FR, 1996 WL 125594, at *2 (D. Or. Mar. 15, 1996).

206. *See id.*

207. *See id.*

208. *See id.*

209. *See id.* at 1250, 1255 (concluding that "the use of a thermal imager to observe heat emitted from various objects within the home infringes upon an expectation of privacy that society clearly deems reasonable").

210. *See id.* at 1250.

211. *See id.* at 1250-51 (noting that the government officials used the thermal imaging device after Kyllo's utility records were subpoenaed and it was concluded that Kyllo's electricity use was abnormally high).

212. *See id.* at 1252-53 (citing *California v. Ciraolo*, 476 U.S. 207, 211 (1986), which concluded that the defendant had satisfied the test for manifesting his subjective intent and desire to maintain his privacy by placing a double fence around his backyard marijuana crop).

vacy in those activities."²¹³ The court rejected the heat-waste analogy used by other courts.²¹⁴ Following the lead of the Tenth Circuit,²¹⁵ the court concluded that its analysis should focus on the reasonableness of

213. *Id.* at 1253 (citing *United States v. Ishmael*, 48 F.3d 850, 854 (5th Cir. 1995)).

214. *See id.* (rejecting the "heat-waste" analogy and finding that the "purpose and utility of the thermal imager is to reveal the heat signatures of various objects and activities occurring inside a structure").

215. *See United States v. Cusumano*, 67 F.3d 1497, 1502 (10th Cir. 1995), *vacated on other grounds*, 83 F.3d 1247 (10th Cir. 1996) (finding that "[t]he pertinent inquiry is not, therefore, whether the [d]efendants retain an expectation of privacy in the 'waste heat' radiated from their home but, rather, whether they possess an expectation of privacy in the heat signatures of the activities, intimate or otherwise, that they pursue within their home").

The defendants, Robert Porco and Christopher Cusumano, appealed their convictions for the manufacture of marijuana. *See Cusumano*, 67 F.3d at 1499. The warrant was predicated upon information received from the defendants' landlady indicating that the defendants had set up an electric generator that ran continuously in the garage. *See id.* at 1510. Claiming that they were interested in growing vegetables, the defendants rewired the basement's electrical system and installed new lighting. *See id.* The landlady remarked that she noticed a strong, musty odor in the basement, and that although the defendants had no identifiable employment or other means of support, they consistently paid their rent in cash. *See id.* Other suspicious activity included the defendants' consumption of roughly twice as much electricity as a typical household, modifications to the basement's electrical system, and the defendants acting in a manner that made a local insurance agent fear for his safety when the defendants refused him entry to the house. *See id.* The court concluded that these facts provided "more than ample support for the warrant that was issued." *Id.*

The Tenth Circuit held, however, that the "[u]se of a thermal imager enables the government to discover that which is shielded from the public by the walls of the home." *Id.* at 1509. In holding that the government must obtain a warrant before using thermal imaging upon a home, the court relied on *United States v. On Lee*, 193 F.2d 306, 315-16 (2d Cir. 1951) (Frank, J., dissenting), *aff'd*, 343 U.S. 747 (1952), which stated:

A man can still control a small part of his environment, his house; he can retreat thence from outsiders, secure in the knowledge that they cannot get at him without disobeying the Constitution. That is still a sizable hunk of liberty—worth protecting from encroachment. A sane, decent, civilized society must provide some such oasis, some shelter from public scrutiny, some insulated enclosure, some enclave, some inviolate place which is a man's castle.

Id.

The court also relied on the Supreme Court's decision in *United States v. Karo*, 468 U.S. 705, 714 (1984), holding that private residences are places in which the individual has an expectation of privacy free from warrantless intrusion by the government. *See Cusumano*, 67 F.3d at 1509. In *Karo*, the government placed an electronic beeper inside a can of ether and used the beeper to track the movement of the cans over the course of several months. *See Karo*, 468 U.S. at 708. Law enforcement officers eventually followed the defendants to a private residence suspected of concealing a drug lab. *See id.* Activation of the beeper revealed that the can of ether had been stored in the suspected home. *See id.* The defendants argued that the warrantless use of the beeper impermissibly intruded into the privacy of their home. *See id.* at 714. The Court held that the revelation of a single detail about the interior of the home—whether or not the beeper was still inside the home—sufficed to violate the Fourth Amendment. *See id.* at 715.

the subjective expectation of privacy.²¹⁶

Focusing on *United States v. Karo*,²¹⁷ the Ninth Circuit determined here that the Supreme Court was clear in its finding of a reasonable expectation in the privacy of one's home.²¹⁸ The court also focused on the Supreme Court's decision in *Silverman v. United States*²¹⁹ to emphasize the importance of protecting privacy within the home against intrusive acts by the government.²²⁰ Finally, the court, relying on *Payton v. New York*,²²¹ argued that warrantless searches and seizures in the home are presumptively unreasonable.²²²

The court then shifted its analysis to concentrate on intimate details.²²³ The court concluded that the thermal imaging search exposed sufficient intimate details to find a violation of the Fourth Amendment.²²⁴ Focusing on the Tenth Circuit's decision in *United States v. Cusumano*,²²⁵ the court noted that domestic activities could be observed through a thermal imager.²²⁶ The court further pointed out that it did not matter whether

216. See *Kyllo*, 140 F.3d at 1253 (addressing the issue of "whether Kyllo's subjective expectation of privacy regarding the heat signatures of the activities within his home is one that society is prepared to acknowledge as reasonable").

217. 468 U.S. 705, 714 (1984) (holding that the individual's expectation in the privacy of a residence is plainly one that society is prepared to recognize as reasonable).

218. See *Kyllo*, 140 F.3d at 1253 (citing *Karo*, 468 U.S. at 714).

219. 365 U.S. 505, 511 (1961) (stating that "[a]t the very core stands the right of a man to retreat into his own home and there be free from unreasonable governmental intrusion").

220. See *Kyllo*, 140 F.3d at 1253 (citing *Silverman*, 365 U.S. at 511).

221. 445 U.S. 573, 590 (1980) ("[The Fourth Amendment] has drawn a firm line at the entrance to the house. Absent exigent circumstances, that threshold may not reasonably be crossed without a warrant.").

222. See *Kyllo*, 140 F.3d at 1253 (citing *Payton*, 445 U.S. at 590).

223. See *id.* (stating that the court is "concerned about the nature of the information that the thermal imager used to scan Kyllo's home is able to reveal").

224. See *id.* at 1254 (concluding that the details revealed by a thermal imager are sufficiently "intimate" to determine that a Fourth Amendment violation occurred).

225. 67 F.3d 1497, 1504 (10th Cir. 1995), *vacated on other grounds*, 83 F.3d 1247 (10th Cir. 1996). The court held that the thermal imager intrudes upon the privacy of the home not because it records white spots on a dark background but rather because the interpretation of that data allows the government to monitor those domestic activities that generate a significant amount of heat [W]hile the imager cannot reproduce images or sounds, it nonetheless strips the sanctuary of the home of one vital dimension of its security: "the right to be let alone" from the arbitrary and discretionary monitoring of our actions by government officials.

Id.

226. See *Kyllo*, 140 F.3d at 1254 (holding that it is not disputed whether the Agema 210 could reveal details such as intimate activities in a bedroom because the manufacturer testified that the imager used in this case is "[s]ensitive to temperature differences as small

the image created by the device was clear or not because the rapid improvement of technology would develop devices with the ability to create clearer images.²²⁷

In an attempt to interpret "intimate details,"²²⁸ the Ninth Circuit found persuasive the fact that the thermal imager may not only reveal the intimate details of sexual activity, but may also detect common activities in the home.²²⁹ The court went so far as to say that those daily activities in the home, which some might consider trivial and mundane, were sufficiently "intimate."²³⁰ Based on this reasoning that simple, everyday activities constitute intimate details of the home, the court concluded "that the use of a thermal imager to observe heat emitted from various objects within the home infringes upon an expectation of privacy that society clearly deems reasonable."²³¹

By the end of 1998, both the Supreme Court of Montana and the Ninth Circuit Court of Appeals had ruled that the warrantless use of a thermal imager constitutes a search within the proscription of the Fourth Amendment.

as 0.9 degrees F[ahrenheit]"). Relying on a point made by the court in *Cusumano*, the court in *Kyllo* noted that it would not be difficult to determine the "origin of two commingled objects emitting heat in a bedroom at night." *Id.*

227. *See id.* (concluding that while the Agema is a relatively unsophisticated thermal imager that cannot reveal highly intimate details, the rapid pace of improvement of technology is responsible for the development of much more powerful and sophisticated thermal images "which are increasingly able to reveal the intimacies that we have heretofore trusted take place in private absent a valid search warrant legitimizing their observation").

228. *See id.* at 1254-55.

229. *See id.* (holding that even if a thermal imager does not reveal details such as sexual activity in a bedroom, a thermal image could identify a variety of daily activities conducted in any home such as the use of washers and dryers, ovens, showers and bathtubs, and any other household appliance that releases heat). It is not so much a question of how intimate an activity is, but what kind of expectation of privacy is found in one's home. *See id.*

230. *See id.* at 1255 (concluding that even the routine and trivial activities occurring in the home are sufficiently "intimate" as to violate the Fourth Amendment if law enforcement observes the activities without a warrant). *But see* Tracy M. White, Note, *The Heat Is On: The Warrantless Use of Infrared Surveillance to Detect Indoor Marijuana Cultivation*, 27 ARIZ. ST. L.J. 295, 308 (1995) (suggesting that the Ninth Circuit, if presented with the facts of *United States v. Pinson*, 24 F.3d 1056 (8th Cir. 1994), would in all likelihood agree with the Eighth Circuit that the warrantless use of a thermal imager in order to detect indoor marijuana cultivation does not violate the Fourth Amendment).

231. *Kyllo*, 140 F.3d at 1255 ("It matters not that the search uncovered nothing of any great personal value to respondent A search is a search, even if it happens to disclose nothing but the bottom of a turntable."); *see also* *United States v. Karo*, 468 U.S. 705, 717-18 (1984) (holding that revelation of a single detail about the interior of the home, regardless of whether the beeper placed inside a can of ether was still inside the home, was sufficient to violate the Fourth Amendment).

3. *The Ninth Circuit's Step Backward*

On July 29, 1999, the Ninth Circuit Court of Appeals withdrew its 1998 *Kyllo* decision.²³² On September 9, 1999, after rehearing the arguments, a modified three judge panel held that the warrantless use of a thermal imager does not constitute a search within the meaning of the Fourth Amendment.²³³ Although two of the original judges, Circuit Judges Noonan and Hawkins, were present, Judge Brunetti had replaced the Honorable Robert R. Merhige, Jr.²³⁴ Because Judge Noonan dissented,²³⁵ it appears that this replacement caused the Ninth Circuit to decide *Kyllo* differently.

Judge Hawkins, who had written the dissent in the 1998 decision,²³⁶ wrote the majority opinion, holding that the warrantless use of the thermal imager does not violate the Fourth Amendment.²³⁷ In addition to concluding that *Kyllo* failed to demonstrate a subjective expectation of privacy in the waste heat emitted from his home,²³⁸ the court stated that the crucial issue was whether the technological device revealed "intimate details."²³⁹ The court ruled that the thermal imager did not reveal any intimate details of *Kyllo's* life because it "merely indicated amorphous 'hot spots' on the roof and exterior wall and not the detailed images of private activity that *Kyllo* suggests the technology could expose."²⁴⁰ Judge Hawkins, following the lead of *Dow* and *Myers*, warned that thermal imaging technology might advance to the point where it will no longer be a permissive non-intrusive observation, but will become an impermissible warrantless search.²⁴¹

Judge Noonan, dissenting, argued that the majority relied erroneously

232. See *United States v. Kyllo*, 184 F.3d 1059 (9th Cir. 1999).

233. See *United States v. Kyllo*, 190 F.3d 1041, 1043 (9th Cir. 1999).

234. See *id.* at 1043 n.1.

235. See *id.* at 1048 (Noonan, J., dissenting) (determining that *Kyllo* had an expectation of privacy as to the interior of his home, which society is prepared to find reasonable).

236. See *Kyllo*, 140 F.3d at 1255 (Hawkins, J., dissenting) (finding that thermal imaging technology does not constitute a search because it does not intrude into protected areas).

237. See *Kyllo*, 190 F.3d at 1046 (stating that *Kyllo* did not demonstrate a subjective expectation of privacy in the heat emissions from his home).

238. See *id.* at 1046.

239. See *id.* at 1047 (quoting *United States v. Ishmael*, 48 F.3d 850, 855 (5th Cir. 1995)).

240. *Id.* (quoting *United States v. Ford*, 34 F.3d 992, 997 (11th Cir. 1994), and stating that the information revealed "is neither sensitive nor personal, nor does it reveal the specific activities within the . . . home").

241. See *id.* at 1045-46 (concluding that based on the facts in this case, there was no violation of the Fourth Amendment).

on the intimate details analysis found in the dicta of *Dow*.²⁴² While acknowledging the majority's error in relying on intimate details analysis, Judge Noonan also argued that the majority concluded erroneously that the dangers presented by the thermal imager were merely potential and not actual.²⁴³ Judge Noonan then proceeded to list examples of those innocent activities that produce heat within the walls of a home, and proffered that society would obviously consider an expectation of privacy associated with these activities to be reasonable.²⁴⁴

IV. ADVOCATING AN ANALYSIS THAT MIRRORS EITHER THE MONTANA SUPREME COURT OR THE WITHDRAWN *KYLLO* OPINION

The Fourth Amendment seeks to protect individuals in their "persons, houses, papers, and effects, against unreasonable searches and seizures."²⁴⁵ Presently, however, the Supreme Court has not created a clear rule to guide lower courts in their analysis of warrantless thermal imaging.²⁴⁶

The war on drugs has been costly, with the government allocating a substantial amount of money to law enforcement agencies for devices that provide easier and more efficient searches of the growth, distribution, and use of narcotics.²⁴⁷ Critics argue, however, that the war on drugs is more costly in terms of the losses sustained in individual rights.²⁴⁸

Law enforcement agencies use the thermal imager to detect indoor

242. See *id.* at 1050 (Noonan, J., dissenting) (arguing that "[t]o rely on the phrase 'intimate details' as stating the criterion is to wrench the phrase from context").

243. See *id.* (Noonan, J., dissenting) (concluding that the intrusion into the home is real).

244. See *id.* (Noonan, J., dissenting) (providing such examples as the use of an indoor sauna, the making of ceramics in a basement kiln, and the hothouse cultivation of plants in a domestic greenhouse).

245. U.S. CONST. amend. IV.

246. See *supra* Parts I & II.

247. See Steven Wisotsky, *Crackdown: The Emerging "Drug Exception" to the Bill of Rights*, 38 HASTINGS L.J. 889, 889-95 (1987) (chronicling government expenditures to combat the "drug war").

248. See *id.* at 925-26 (1987) (discussing how the protections historically afforded by the Bill of Rights have been reduced by the "War on Drugs"). Wisotsky argues that a product of the "War on Drugs" is a "political-legal context" in which drug enforcement activities are protected as an exception to the notion that laws must satisfy the deepest principles of fairness and justice. See *id.*; see also Joe Davidson, *The Drug War's Color Line: Black Leaders Shift Stances on Sentencing*, THE NATION, September 20, 1999, at 42 (explaining that African-American leaders, while citing numerous statistics on the harmful consequences of discriminatory law enforcement and disproportionate penalties for crack cocaine offenses, are acting to reform racist policing and sentencing in the war against drugs).

marijuana cultivation.²⁴⁹ Although thermal imagers cannot measure temperature, they do compare the amount of heat radiating from different objects.²⁵⁰ Officers record the results of thermal imaging on video tape; objects with high surface temperatures are displayed in white, while cooler objects are displayed in shades of gray and black.²⁵¹ In *Siegal*, the Montana Supreme Court noted that at the time it decided the case in 1997, thermal imagers were not capable of “see[ing] through walls” or “produc[ing] distinct images of a person, object or activity within a structure.”²⁵²

According to the Supreme Court of Montana, Montanans have heightened expectations of privacy.²⁵³ That is not to say that the remaining states in the union have little expectations of privacy. On the contrary, it is important to consider that in the United States, where “political ideology” is based in great part on the theories of John Locke and John Stuart Mill, the concept of private property and the privacy it affords to individuals is probably as crucial as those liberties protected in the Bill of Rights. Americans embrace their property and their ability to obtain it; the right of privacy simply comes with the property. By placing the burden on the government to prove a compelling state interest warranting a reasonable search, the law ensures the protection of the privacy interests of individuals.

Before withdrawing the decision, a three-judge panel of the Ninth Circuit Court of Appeals held that the use of a thermal imager constituted a search within the meaning of the Fourth Amendment.²⁵⁴ After finding that the defendants manifested an expectation of privacy in their activities within the home,²⁵⁵ the Ninth Circuit then considered whether inti-

249. See *United States v. Field*, 855 F. Supp. 1518, 1522 (W.D. Wis. 1994).

250. See *United States v. Pinson*, 24 F.3d 1056, 1057 (8th Cir. 1994).

251. See Ed Glenn, *An Eye in the Night Sky*, OR. BUS., Nov. 1, 1995, at 11. More advanced thermal imagers, or FLIRs, are now capable of distinguishing temperature differentials in color. See *id.*

252. *State v. Siegal*, 934 P.2d 176, 181 (Mont. 1997) (noting that thermal imaging does not differentiate between a heat source produced by a legal activity, such as growing African Violets in a greenhouse, and one produced by an illegal activity, such as growing marijuana).

253. See *id.* at 191 (explaining that Article II, section 10 of Montana’s Constitution affords broader protections to a citizen’s right of privacy).

254. See *United States v. Kyllo*, 140 F.3d 1249, 1255 (9th Cir. 1998), *withdrawn*, 184 F.3d 1059 (9th Cir. 1999), *superseded on reh’g*, 190 F.3d 1041 (9th Cir. 1999). The withdrawn opinion held that the use of thermal imagers to detect heat emitted from the various activities and objects found within the home, including people, infringes upon the expectation of privacy that society clearly recognizes as reasonable. See *id.* at 1255.

255. See *id.* at 1253 (finding that the defendant manifested an expectation of privacy by moving his agricultural pursuits indoors); see also *California v. Ciraolo*, 476 U.S. 207,

mate details were involved.²⁵⁶ The Ninth Circuit took the initiative to create a stronger, viable definition for intimate details.²⁵⁷ It is a definition that expands the list of activities and objects that the government must protect and upon which it cannot infringe without a warrant.

While the term "intimate" commonly refers to those activities that are sexual in nature, or at the very least, relational, the Ninth Circuit had determined that such a requirement was too under-inclusive.²⁵⁸ What constitutes intimate details, according to the Ninth Circuit, had included those "routine and trivial activities" of everyday life.²⁵⁹ Perhaps more importantly, the Ninth Circuit had made it clear that even if the device in question was relatively unsophisticated and therefore unable to reveal intimate details to any great extent, or in great clarity, technology is continually advancing, and eventually, there will be more sophisticated devices in use and in development that *will* be able to reveal even greater details.²⁶⁰

Adopting either the Montana Supreme Court's or the Ninth Circuit's withdrawn approach is desirable. When governments take drastic measures to solve society's ills, they oftentimes sacrifice as their first victims the rights and liberties of individuals. The war on drugs is a prime example. The concern, which Judge Noonan explained appropriately in his *Kyllo* dissent,²⁶¹ is that advancing technology will allow law enforcement agents to perform the type of unfettered surveillance best and horrifyingly described in George Orwell's *1984*.²⁶²

211 (1986) (finding that the defendant manifested his subjective intent and desire to maintain his privacy by placing a double fence around his marijuana crop).

256. See *Kyllo*, 140 F.3d at 1253-55 (finding that the details unveiled by the thermal imager were sufficiently "intimate" to give rise to a Fourth Amendment violation).

257. See *id.* at 1254-55.

258. See *id.* at 1254-55 (stating that even if a thermal imager does not disclose details of sexual activity in a bedroom, it may very well detect other activities of daily life such as showering and bathing, the use of appliances such as ovens, washers, dryers, and any other ones that release heat).

259. See *id.* (holding that the possibility that such instruments could reveal anything about our lives within our homes is enough to constitute a violation). The sanctuary of the home, which reflects security, is compromised by a thermal imager search. See *id.* at 1254.

260. See *id.* at 1254.

261. See *United States v. Kyllo*, 190 F.3d 1041, 1050 (9th Cir. 1999) (Noonan, J., dissenting) (warning that the majority views the dangers of Orwellian surveillance as "speculative and at most potential").

262. GEORGE ORWELL, 1984 67 (1963). Orwell writes:

Both of them knew—in a way, it was never out of their minds—that what was now happening could not last long. There were times when the fact of impending death seemed as palpable as the bed they lay on, and they would cling together with a sort of despairing sensuality, like a damned soul grasping at his last morsel of pleasure when the clock is within five minutes of striking. But there were also

V. CONCLUSION

With the constant advancement of technology, government officials and agents have acquired sophisticated means of monitoring those members of society whom the government suspects are breaking the law (specifically suspected marijuana growers and distributors). A major problem with such means, specifically thermal imaging devices, is that they do not discriminate between legal activities and illegal activities. The question arises whether such a thermal imaging scan is a "search" within the proscription of the Fourth Amendment, thereby requiring a search warrant. The Supreme Court and consequently, federal and state courts, have been inconsistent in applying one specific standard, and in determining what constitutes reasonable expectations of privacy and activities of daily life that are considered "intimate." The advent of new technology will call upon the Supreme Court to provide a coherent legal framework for analyzing and weighing technological devices used and the right to privacy embraced by the public. If the Supreme Court wishes to ensure that Fourth Amendment protections remain relevant and strong, it must lay down a clear standard that will not only provide consistent leadership for the lower courts, but that will also protect the privacy interests of citizens. This nation's highest Court should protect these privacy interests to the heightened extent that the Supreme Court of Montana has.

The thermal imager creates a great danger. That danger is the false sense that thermal imaging merely reveals to law enforcement agents only a "fuzzy picture" of the illegal operations of a bunch of "pot-heads" who have attempted to take advantage of the law by moving their "weed" indoors and have naïvely "released" the heat from the growing process. For the vast majority of this country's citizens, however, the home holds within its walls far more intimate activities. And while some may consider activities such as washing dishes or doing laundry ordinary and mundane, these activities still deserve the utmost protection from government intrusion.

times when they had the illusion not only of safety but of permanence. So long as they were actually in this room, they both felt, no harm could come to them. Getting there was difficult and dangerous, but the room itself was sanctuary. It was as when Winston had gazed into the heart of the paperweight, with the feeling that it would be possible to get inside that glassy world, and that once inside it time could be arrested.

Id.